AIRLESSCO PAINT SPRAYER SERVICE MANUAL

AIRLESSCO 8-10-11 SERIES ALLPRO 910E & 1110E

IMPORTANT WARNING !!

HANDLE THIS UNIT AS YOU WOULD A LOADED FIREARM!
High pressure spray can cause extremely serious injury.
OBSERVE ALL WARNINGS!

Before operating this unit, read and follow all safety warnings and instructions related to the usage of this equipment. READ, LEARN, and FOLLOW the Pressure Relief Procedure on Page 6 of this manual.

All Service Procedures to be performed by an Authorized Airlessco Service Center ONLY. NO MODIFICATIONS or alterations of any AIRLESSCO Equipment or part is allowed.

Manufactured by: AIRLESSCO BY DUROTECH CO.

P.O. Box 8006, Moorpark, CA. 93020-8006, Ship to: 5397 Commerce Ave., Moorpark, CA 93021Tel: 805-523-0211 Fax: 805-523-1063
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INTRODUCTION

This airless paint sprayer is a time-tested, slow-stroking pump built to give many years of reliable service. The design and quality of manufacture has been contractor proven to meet the demanding needs of the professonal painting contractor.

SPECIFICATIONS

	AIRLESSCO	ALLPRO		GPM	PRESSURE	MAX. TIP SIZE
8 SERIES	SL810	810E	.8	3000	.029 (1 gun) -	.019 (2 guns)
10/11 SERIES	SL1100	1000E	1.0	3000	.032 (1 gun) -	.021 (2 guns)

WARNING

Prior to starting, read, understand and observe all safety precautions & warnings on pages 4, 5, 6 & 7, and all labels and tags on the machine.

FLUSHING - Read prior to using your sprayer

1. New Sprayer

Your new unit was factory tested in oil, which was left in the pump. **Before using oil-base paint**, flush with mineral spririts only.

Before using water-base paint, flush with mineral spirits, followed by soapy water, then a clean water flush.

2. Changing Colors

Flush with a compatible solvent such as mineral spirits or water.

3. Changing From Water-base to Oil-base

Flush with soapy water, then mineral spirits.

4. Changing From Oil-base to Water-base

Flush with mineral spirits, followed by soapy water, then a clean water flush.

5. Storage

Always relieve pressure (See pressure relief procedure on page 6) prior to storage or when machine is unattended.

Oil-base Paint: Flush with mineral spirits. Ensure that there is no pressure in the unit, then close the prime/pressure relief valve.

Water-base Paint: Flush with water, then mineral spirits. For longer term storage use a 50/50 mixture of mineral spirits and motor oil. Always ensure that there is no pressure in the unit, and close the prime/pressure relief valve for storage.

WARNING: NEVER LEAVE PUMP UNATTENDED WHILE UNDER PRESSURE !

6. Start Up After Storage

Before using **water-base paint**, flush with soapy water and then a clean water flush.

When using **oil-base paint**, flush out the mineral spirits with the material to be sprayed.

HOW TO FLUSH

FIG. 1

REMOVE SPRAY TIP

ENGAGE GUN SAFETY LATCH (LOCK GUN) as per gun instruction manual.

FIG. 3

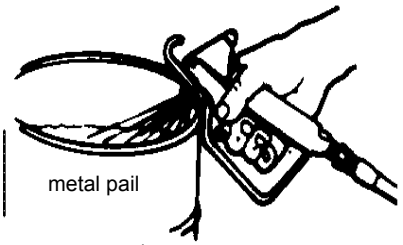
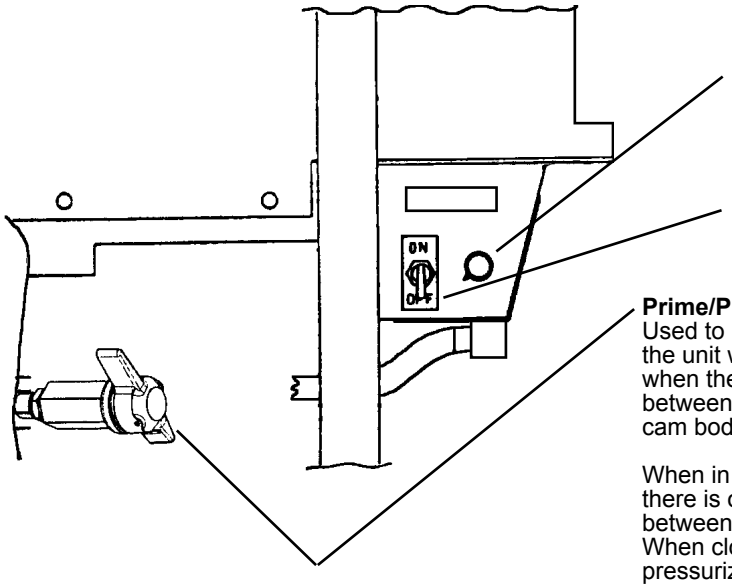


FIG. 2

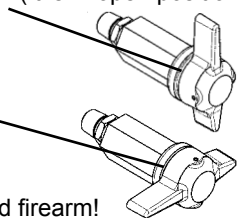


Pressure Control Knob: used to adjust pressure only. Turn clockwise to increase pressure and counterclockwise to decrease pressure.

On/Off Switch
Thermal Overload Switch

Prime/Pressure Relief Valve (Prime/PR Valve) Used to relieve pressure from gun/hose/tip and to prime the unit when in OPEN position. (It is in open position when there is a wider gap between valve handle and cam body)

When in CLOSED position, there is only a very slight gap between handle & body. When closed the system is pressurized. Handle as a loaded firearm!



1. Be sure the gun safety latch is engaged and there is no spray tip in the gun. Refer to your separate instruction manual provided with your gun on its safety features and how to engage safety latch. Refer to Fig. 1

2. Pour enough clean, compatible solvent into a large, empty metal pail to fill the pump and hoses.

3. Place the suction tube into the pail or place the pail under the pump.

4. Turn the pressure control knob to low pressure. Refer to Fig. 2.

5. Open the prime valve to the open- priming position. This will allow an easy start. Refer to Fig. 2.

6. Turn the motor ON/OFF switch to ON.

7. Point the gun into the metal pail and hold a metal part of the gun firmly against the pail. Refer to Fig. 3.

WARNING: To reduce the risk of static sparking, which can cause fire or explosion, always hold a metal part of the gun firmly against the metal pail when flushing.

8. Disengage the gun safety latch and squeeze the gun trigger. At the same time, slowly turn the pressure control knob clockwise, just enough to start the pump. Refer to Fig. 2.

9. Allow the pump to operate until clean solvent comes from the gun.

10. Release the trigger and engage the gun safety latch.

11. If you are going to start spraying, place the suction tube into the supply container. Release the gun safety latch and trigger the gun into another empty, metal container, holding a metal part of the gun firmly against the metal pail, and force the solvent from the pump and hose. Engage the gun safety latch until you are ready to prime the pump.

12. If you are going to store the sprayer, remove the suction tube from the solvent pail, holding a metal part of the gun firmly against the metal pail, force the solvent from the pump and hose, Engage the gun safety latch. Refer to "Storage" procedure on page 1.

13. Whenever you shut off the sprayer follow the Pres-

SETTING UP

1. Connect the Hose and Gun

a. Remove the plastic cap plug from the outlet connector and screw a conductive or grounded 3000 psi spray hose onto fluid outlet.

b. Connect an airless spray gun to the other end of the hose.

2. Fill the Packing Nut/Wet Cup 1/3 full with Throat Seal Oil (TSO) supplied. (Fig. 4)

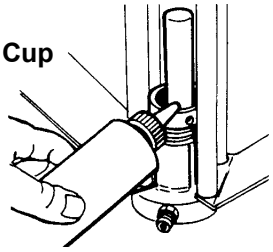


FIG. 4

3. Check the Electrical Service

Be sure the electrical service is 120 V, 60 HZ AC 15 amp minimum and that the outlet you use is properly grounded.

4. Grounding

> **WARNING**: To reduce the risk of static sparking, fire or explosion which can result in serious bodily injury and property damage, always ground the sprayer and system components and the object being sprayed as instructed on page 6.

5. Flush the sprayer as per "Flushing" - New Sprayer on page 1 and "How to Flush" on page 2.

SETTING UP AND STARTING -

Read Safety Warnings on page 4, 5, 6 and 7 before starting.

1. Learn the Controls

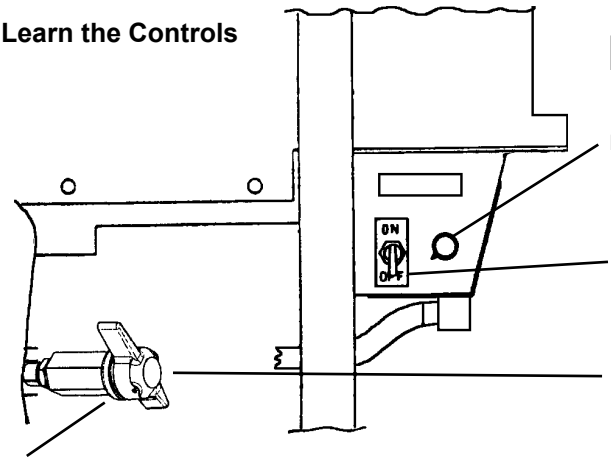


FIG. 5

Pressure Control Knob
-used to adjust pressure only. Turn clockwise to increase pressure and counterclockwise to decrease pressure.

On/Off Switch

Thermal Overload Switch

Prime/Pressure Relief Valve- used both to relieve pressure from gun/ hose/ tip, and to prime the pump when in the open position (a wider gap shows between the valve handle and cam body.)
Learn and follow **Pressure Relief Procedure** on page 6 of this manual. When in closed position (very slight gap) the system is pressurized and ready to spray.

When you turn the valve handle and the gap between the valve handle and the cam body becomes wider - this means the valve is in the open position. It is in the closed position when the gap becomes very small.

2. Prepare the Material according to the material manufacturer's recommendations.

3. Place the suction tube into the material container.

4. Starting the Sprayer (See Fig. 5 above)
a. Prime Valve must be open - priming position.
b. Pressure control knob must be in Low Pressure position.
c. Turn the motor ON/OFF switch to ON.

> **WARNING:** To stop the unit in an emergency, turn motor off. Then relieve the fluid pressure in the pump and hose as instructed in the Pressure Relief Procedure on Page 6.

> **CAUTION:** Do not turn motor on without fluid pump having enough fluid so that it can be primed. Running fluid pump dry will decrease life of pumps packings.

5. Prime the pump.
a. Be sure gun safety latch is engaged.
b. After the pump is primed, close the prime valve by turning it all the way to "closed" position.
c. Turn the pressure control knob to desired spray pres sure.
d. Disengage the gun safety lock and you are ready to start spraying.

> **WARNING:** If you spray into the paint bucket, always use lowest spray pressure and maintain firm metal to metal contact between gun and container. See Fig.3. page 2.

CONTINUED NEXT PAGE

SETTING UP AND STARTING

6. Adjusting the Pressure

a. Turn the pressure control knob clockwise to increase
and counterclockwise to decrease pressure.
b. Always use the lowest pressure necessary to com-

> **CAUTION:** Operating the sprayer at higher pressure than needed wastes material, causes early tip wear and shortens sprayer life.

c. If more coverage is needed use a larger tip rather than increasing the pressure.

d. Check the spray pattern. The tip size and angle determines the pattern width and flow rate.

7. Cleaning a Clogged Tip

> **WARNING:** To reduce the risk of injection, never hold your hand, body, fingers or hand in a rag, in front of the spray tip when cleaning or checking for cleared tip. Always point the gun toward the ground or into a waste container when checking to see if the tip is cleared or when using a self-cleaning tip.

a. Follow the Pressure Relief Procedure on page 6.
b. Clean the front of the tip frequently (with toothbrush only) during the day to keep material from building up and clogging the tip.
c. To clean and clear a tip if it clogs, refer to the separate instruction manual received with your gun or nozzle.

There is an easy way to keep the outside of the tip clean from material build-up:

Everytime you stop spraying for even a minute, lock the gun and submerge the gun into a small bucket of thinner compatible with the material sprayed. Thinner will dissolve the build up of paint on the outside of tip, tip guard and gun much more effectively if the paint did not have time to dry out completely.

> **WARNING:** Clogged standard (flat) tip - clean only after the tip is removed from the gun. Follow the Pressure Relief Procedure on Page 6.

8. When shutting off the sprayer

a. Whenever you stop spraying, even for a short break, follow the Pressure Relief Procedure Warning on page 6.
b. Clean the tip and gun as recommended by your separate gun instruction manual.
c. Flush the sprayer at the end of each work day if the material you are spraying is waterbased, or if it could harden in the sprayer overnight. See "Flushing"
page 1 & 2. Use a compatible solvent to flush, then fill the pump and hoses with an oil-based solvent

> **WARNING:** Be sure to relieve pressure in the pump after filling with mineral spirits.

d. For long term shutdown or storage, refer to page

LCD - LIQUID CRYSTAL DISPLAY

If your sprayer is equipped with an optional LCD Readout, the system pressure will be displayed.

WARNINGS

HIGH PRESSURE SPRAY CAN CAUSE EXTREMELY SERIOUS INJURY. **Handle as you would a loaded firearm. Learn and follow the PRESSURE RELIEF PROCEDURE ON PAGE 6. Observe all warnings. This sprayer is for professional use only.**

DO NOT USE halogenated solvents in this sytem. The prime valve, 2 gun manifold and most airless guns have aluminum parts and may explode. Cleaning agents, coatings, paints or adhesives may contain halogenated hydrocarbon solvents. DON'T TAKE CHANCES! Consult your material suppliers to be sure. Some of the most common of these solvents are: Carbontetrachloride, Chlorobenzene, Dichloroethane, Dichloroethyl Ether, Ethylbromide, Ethylchloride, Tethrachloethane. Alternate valves and guns are available if you need to use these solvents.

Important: United States Government safety standards have been adopted under the Occupational Safety & Health Act. These standards, particularly the General Standards, Part 1910 & and Construction Standards, Part 1926 should be consulted.

WARNINGS CONTINUED ON NEXT PAGE.....

WARNINGS

MEDICAL ALERT - Airless Spray Wounds

If any fluid appears to penetrate your skin, get **EMERGENCY MEDICAL CARE AT ONCE. DO NOT TREAT AS A SIMPLE CUT**.
Tell the doctor exactly what fluid was injected.

NOTE TO PHYSICIAN: Injection in the skin is a traumatic injury. **It is important to treat the injury surgically as soon as possible. DO NOT DELAY treatment to research toxicity.** Toxicity is a concern with some exotic coatings injected directly into the blood stream. Consultation with a plastic surgeon or reconstructive hand surgeon may be advisable.

INJECTION HAZARD

Fluids under high pressure from spray or leaks can penetrate the skin and cause extremely serious injury, including the need for amputation.
NEVER point the spray gun at anyone or any part of the body.
NEVER put hand or fingers over the spray tip. Do not use rag or other materials over your fingers. Paint will penetrate through material and into the hand.
NEVER try to stop or deflect leaks with your hand or body.
ALWAYS have gun tip guard in place when spraying.
ALWAYS lock gun trigger when you stop spraying.
ALWAYS remove tip from the gun to clean it.
NEVER try to "blow back" paint, this is not an air spray sprayer.
ALWAYS follow the **PRESSURE RELIEF PROCEDURE**, as shown on page 6, before cleaning or removing the spray tip or servicing any system equipment.
Be sure equipment safety devices are operating properly before each use.
Tighten all fluid connections before each use.

MEDICAL TREATMENT

If any fluid appears to penetrate your skin, get **EMERGENCY CARE AT ONCE. DO NOT TREAT AS A SIMPLE CUT.**
* Go to an emergency room immediately.
* Tell the doctor you suspect an injection injury.
* Tell him what kind of material you were spraying with
and have him **read NOTE TO PHYSICIAN above.**

GENERAL PRECAUTIONS

NEVER alter equipment in any manner.
NEVER smoke while in spraying area.
NEVER spray highly flammable materials.
NEVER use around children.
NEVER allow another person to use sprayer unless he is thoroughly instructed on its' safe use and given this operators manual to read.
ALWAYS wear a spray mask, gloves and protective eye wear while spraying.
ALWAYS ensure fire extinquishing equipment is readily available and properly maintained.
NEVER LEAVE SPRAYER UNATTENDED WITH PRESSURE IN THE SYSTEM. FOLLOW PRESSURE RELIEF PROCEDURES ON PAGE 6.

ALWAYS INSPECT SPRAYING AREA

Keep spraying area free from obstructions.
Make sure area has good ventilation to safely remove vapors and mists.
NEVER keep flammable material in spraying area.
NEVER spray in vicinity of open flame or other sources of ignition.
Spraying area must be at least 20 ft. away from spray unit.

SPRAY GUN SAFETY

ALWAYS set safety lock on the gun in "LOCKED" position when not in use and before servicing or cleaning.
DO NOT remove or modify any part of gun.
ALWAYS REMOVE SPRAY TIP when cleaning. Flush unit with LOWEST POSSIBLE PRESSURE.
CHECK operation of all gun safety devices before each use.
Be very careful when removing the spray tip or hose from gun. A plugged line contains fluid under pressure. If the tip or line is plugged, follow the **PRESSURE RELIEF PROCEDURE** as outlined on page 6.

TIP GUARD

ALWAYS have the tip guard in place on the spray gun while spraying. The tip guard alerts you to the injection hazard and helps prevent accidentally placing your fingers or any part of your body close to the spray tip.

SPRAY TIP SAFETY

Use extreme caution when cleaning or changing spray tips. If the spray tip clogs while spraying, engage the gun safety latch immediately. ALWAYS follow the **PRESSURE RELIEF PROCEDURE** and then remove the spray tip to clean it.
NEVER wipe off build up around the spray tip.
ALWAYS remove tip & tip guard to clean AFTER pump is turned off and the pressure is relieved by following the **PRESSURE RELIEF PROCEDURE**.
Hazardous fluid or toxic fumes can cause serious injury or death if splashed in eyes or on skin, inhaled or swallowed. Know the hazards of the fluid you are using.
Store & dispose of hazardous fluids according to manufacturer, local, state & national guidelines.
ALWAYS wear protective eyewear, gloves, clothing and respirator as recommended by fluid manufac-

WARNINGS CONTINUED ON NEXT PAGE.....

WARNINGS

PRESSURE RELIEF PROCEDURE

To avoid possible serious bodily injury, including injection, always follow this procedure whenever the sprayer is shut off, when checking or servicing it, when installing, changing or cleaning tips and whenever you stop spraying or when you are instructed to relieve the pressure.

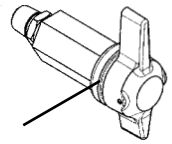
1. Engage gun safety latch. Refer to separate instruction manual provided with your gun on its safety features and how to engage safety latch.

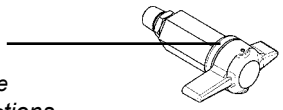
2. Turn unit off and unplug from electrical outlet.

3. Disengage gun safety latch and trigger gun to relieve residual fluid pressure. *Hold metal part of the gun in contact with grounded metal pail.*

Use minimum pressure.

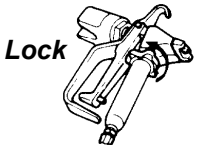
4. Turn Prime/pressure relief valve (PR Valve) to the open (priming) position to relieve residual fluid pressure. ***There will be a wider gap between valve handle and cam body when in open position.***





Note: When in closed position there is only a very slight gap. The valve handle can move both CCW & CW and can face different directions.

5. Re-engage gun safety latch.



Lock

*For overnight or long term storage close

If the SPRAY TIP OR HOSE IS CLOGGED, follow Step 1 through 5 above. Expect paint splashing into the bucket while relieving pressure during Step 4. If you suspect that pressure hasn't been relieved due to damaged prime/pressure relief valve or other reason, engage gun safety latch and take your unit to an authorized Airlessco Service Center.

HOSES

Tighten all fluid connections securely before each use. High pressure fluid can dislodge a loose coupling or allow high pressure spray to be emitted from the coupling and result in an injection injury or serious bodily injury.

Use only hose having a spring guard. The spring guard helps protect the hose from kinks or other damage which could result in hose rupture and cause an injection injury.

NEVER use a damaged hose, which can result in hose failure or rupture and cause an injection injury or other serious bodily injury or property damage. Before each use, check entire hose for cuts, leaks abrasion or bulging of cover, or damage or movement of couplings. If any of these conditions exist, replace the hose immediately. Never use tape or any device to try to mend the hose as it cannot contain the high pressure fluid. NEVER ATTEMPT TO RECOUPLE THE HOSE. High pressure hose is not recoupleable.

Help prevent damage to the hose by handling and routing carefully. Do not move the sprayer by pulling it with the hose.

GROUNDING

Ground the sprayer & other components in the system to reduce the risk of static sparking, fire or explosion which can result in serious bodily injury and property damage. For detailed instructions on how to ground, check your local electrical code.
ALWAYS ensure switch is in OFF position before plugging unit in.

Always ground all of these components.

1. Sprayer: plug the power supply cord, or extension cord, each equipped with an undamaged three-prong plug, into a properly grounded outlet. DO NOT USE AN ADAPTER.
Use only a 3 wire extension cord that has a 3 blade grounding plug, and a 3 slot receptacle that will accept the plug on the product. Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. (Note: The table on the top of the next page shows the correct size to use depending on cord length and name plate ampere rating. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.

2. Air Hoses; use only grounded hoses.
3. Fluid hose: use only grounded hoses.
4. Spray gun or dispensing valve; grounding is obtained through connection to a properly grounded fluid hose and pump.
5. Object being sprayed; according to your local
6. All solvent pails used when flushing.
Once each week, check electrical resistance of hose (when using multiple hose assemblies, check overall resistance.) Overall (end to end) resistance of unpressurized hose must not exceed 29 megohms (max.) for any coupled length or combination of hose lengths. If hose exceeds these limits, replace it immediately.
Never exceed 500 ft. (150 m) overall combined hose length to assure electrical continuity.

WARNINGS

UL RECOMMENDATION FOR MINIMUM GAUGE EXTENSION CORD										
AMPERAGE RATING RANGE	VOLTAGE	25	50	100	150	200	250	300	400	500
5 - 6	120	18	16	12	12	10	10	8	8	6
6 - 8	120	18	16	12	10	10	8	6	6	6
8 - 10	120	18	14	12	10	8	8	6	6	4
10 - 12	120	16	14	10	8	8	6	6	4	4

Always follow recommended pressure and operating instructions.

KEEP CLEAR OF MOVING PARTS

Keep clear of moving parts when starting or operating the sprayer. Do not put your iginfers into any openings to avoid amputation by moving parts or burns on hot parts. Precaution is the best insurance against an accident. When starting the motor, maintain a safe distance from moving parts of the equipment.
Before adjusting or servicing any mechanical part of the sprayer, follow the PRESSURE RELIEF PROCEDURE on page 6.

AVOID COMPONENT RUPTURE

This sprayer operates at 3000 psi (205 bar). Always be sure that all components and accessories have a maximum working pressure of at least 3000 psi to avoid rupture which can result in serious bodily injury including injection and property damage.
NEVER leave a pressurized sprayer unattended to avoid accidental operation of it which could result in serious bodily injury.
ALWAYS follow the PRESSURE RELIEF PROCEDURE whenever you stop spraying and before adjusting, removing or repairing any part of the sprayer.
NEVER alter or modify any part of the equipment to avoid possible component rupture which could result in serious bodily injury and property damage.
NEVER use weak or damaged or non-conductive paint hose. Do not allow kinking or crushing of hoses or allow it to vibrate against rough or sharp or hot surfaces.
Before each use, check hoses for damage and wear and ensure all fluid connections are secure.
REPLACE any damaged hose. NEVER use tape or any device to mend the hose.
NEVER attempt to stop any leakage in the line or fittings with your hand or any part of the body. Turn off the unit and release pressure by following PRESSURE RELIEF PROCEDURE,
ALWAYS use approved high pressure fittings and replacement parts.
ALWAYS ensure fire extinquishing equipment is readily available and properly maintained.

PREVENT STATIC SPARKING FIRE/EXPLOSIONS

ALWAYS be sure all equipment & objects being sprayed are properly grounded. Always ground sprayer, paint bucket and object being sprayed. See grounding on page 6 for grounding information.

Vapors created when spraying can be ignited by sparks. To reduce the risk of fire, always locate the sprayer at least 20 feet (6 m.) away from spray area. Do not plug in or unplug any electrical cords in the spray area, which can create sparks, when there is any chance of igniting vapors still in the air. Follow the coating & solvent manufacturers safety warnings and precautions.

Use only conductive fluid hoses for airless applications. Be sure gun is grounded through hose connections. check ground continuity in hose & equipment. Overall (end to end) resistance of unpressurized hose must not exceed 29 megohms for any coupled length or combination of hose length. Use only high pressure airless hoses with static wire approved for 3000 psi.

FLUSHING

Reduce the risk of injection injury, static sparking or splashing by following the specific cleaning process.
ALWAYS follow the PRESSURE RELIEF PROCEDURE on page 6.
ALWAYS remove the spray tip before flushing. Hold a metal part of the gun firmly to the side of a metal pail and use the lowest possible fluid pressure during flushing.
NEVER use cleaning solvents with flash points below 140 degrees F. Some of these are: acetone, benzene, ether, gasoline, naptha. Consult your supplier to be sure.
NEVER SMOKE in the spraying/cleaning area.

WHEN SPRAYING & CLEANING WITH FLAMMABLE PAINTS AND THINNERS

1. When spraying with flammable liquids, the unit must be located a minimum of 25 feet away from the spraying area in a well ventilated area. Ventilation must be sufficient enough to prevent the accumulation of vapors.
2. To eliminate electrostatic discharge, ground the spray unit, paint bucket & spraying object. See GROUNDING on pg. 6. Use only high pressure airless hoses approved for 3000 psi which is conductive.
3. Remove spray tip before cleaning gun and hose. Make contact of gun with bucket and spray without the tip in a well ventilated area, into the grounded steel bucket.
4. Never use high pressure in the cleaning process. USE MINIMUM PRESSURE.
5. Do not smoke in spraying/cleaning area.

AIRLESSCO 007 SPRAY GUN

SPRAY GUN

Attach spray gun to airless unit and tighten fittings securely. Set the gun safety latch.(Also may be called gun safety lock or trigger lock) * Refer to Fig. A.

* The gun safety latch should always be set when the gun is not being triggered.

Read all warnings and safety precautions supplied with the spray gun and in product manual.

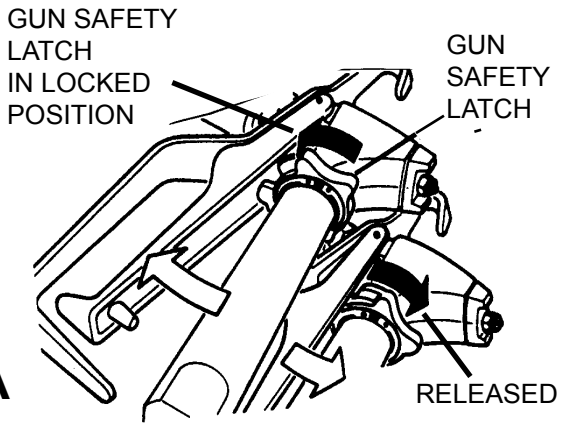
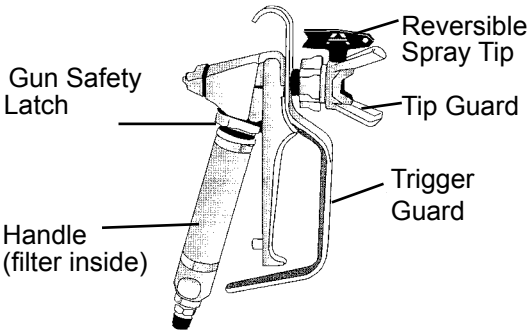


FIG. A

MAJOR COMPONENTS OF SPRAY GUN AND REVERSIBLE SPRAY TIP



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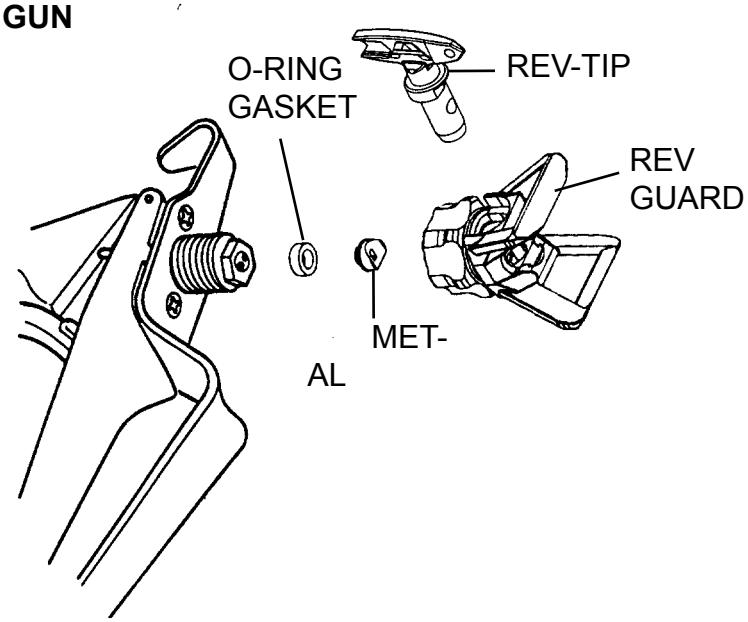
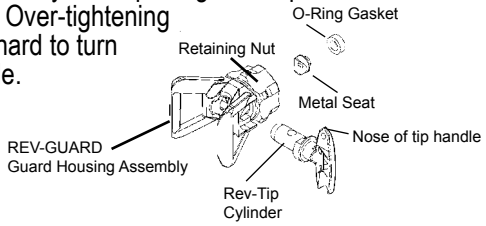


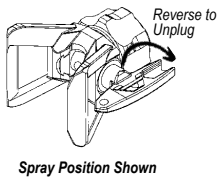
SPRAY TIP ASSEMBLY

1. Be sure the pressure relief procedure is followed before assembling tip and housing to the gun.
2. Install the o-ring gasket onto the back of the metal seat.
3. Insert the nose of the tip handle into the slot on the o-ring side of the metal seat.
4. Insert the metal seat onto the guard housing. Use the nose of the tip handle to position the seat. (The tip will be installed later)
5. Start the guard-housing nut onto the gun.
6. Insert the tip into the guard.
7. Turn the guard to the desired position and tighten the nut sufficiently to keep the guard in position (fingertight). Over-tightening will make it hard to turn the tip handle.



TO REMOVE CLOGS FROM SPRAY TIP

1. Lock gun safety latch.
2. Turn Rev-Tip handle 180 degrees.
3. Disengage trigger lock and trigger gun into pail.
4. If the Rev-Tip handle appears locked (resists turning), loosen the retaining nut. The handle will now turn easily.
5. Engage gun safety latch and return

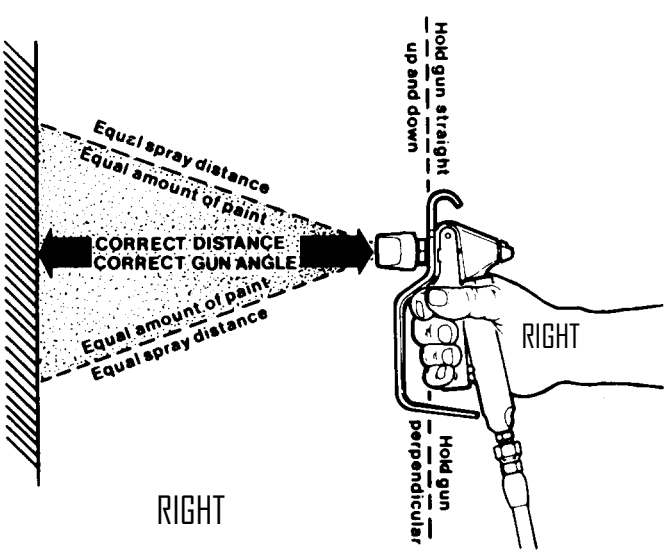


Spray Position Shown

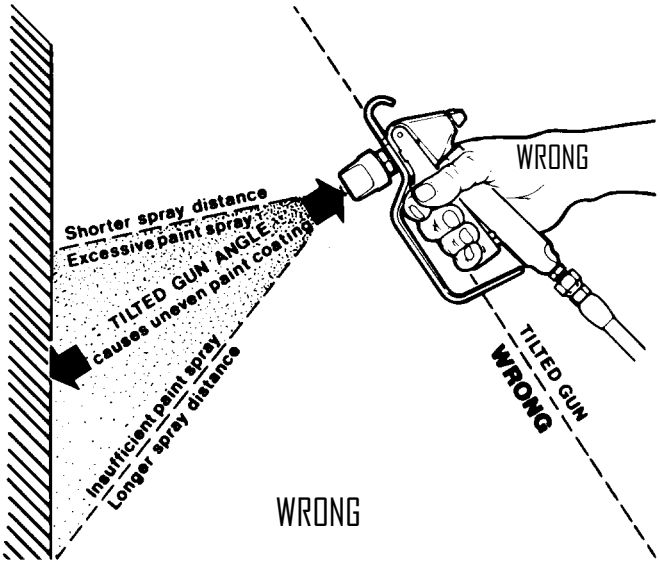
SPRAY TECHNIQUE

Good Spray Gun Technique is at the core of any spray paint operation. Operator skill and efficiency is as important as good equipment and good paint. Good spray technique is a skill that can be quickly learned by following these simple instructions.

If you are not familiar with spraying techniques, we recommend that you study this section of your manual and practice the proper technique on pieces of cardboard or a suitable surface.

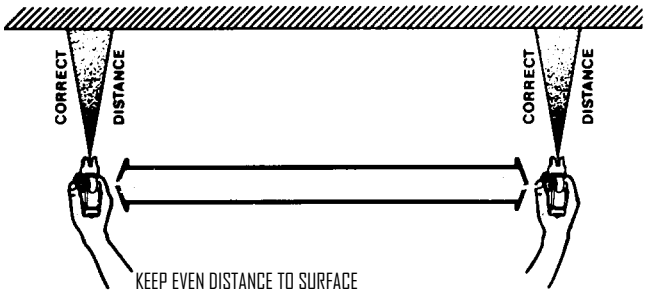


RIGHT

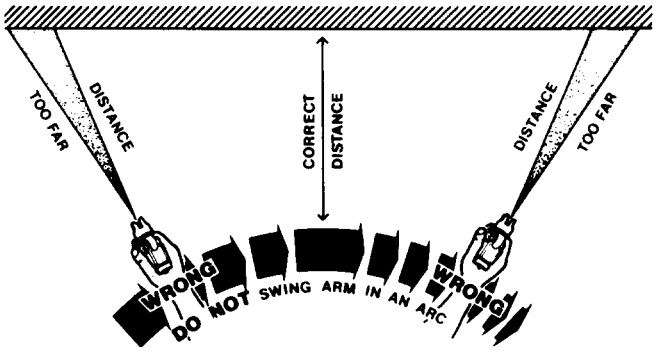


WRONG

Hold the spray gun 12 - 15 inches away from the work surface and keep it perpendicular (straight) to the surface. Move the spray gun parallel to the work and at a right angle to the surface.



RIGHT



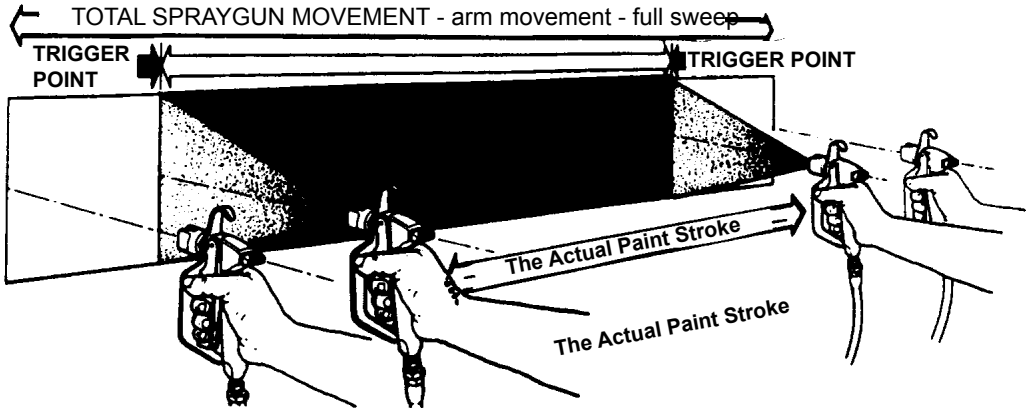
WRONG

Move the gun at a steady rate in order to apply a good coverage. The wet coat should be just under the thickness at which a run or sag will occur. slow gun movement or gun held too close will result in an overly wet or thick wet or thick coat coverage that is likely to run or sag.

Do not wave the spray gun. This waving is called arching. Instead, hold the spray gun at a 12 to 15 inch distance perpendicular from the work.

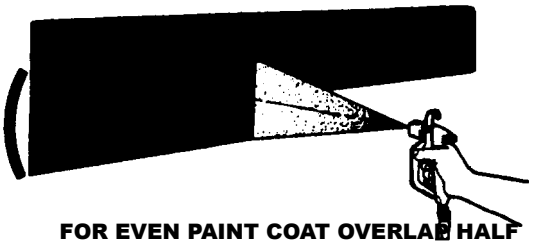
The closer the spray gun is held to the work, the thicker the paint is deposited and the faster the gun must be moved to prevent sags and runs. Holding the gun too far from the work will cause excessive fog, overspray, and a thin and grainy coat.

SPRAY TECHNIQUE


TOTAL SPRAYGUN MOVEMENT - arm movement - full sweep
TRIGGER POINT
TRIGGER POINT
The Actual Paint Stroke
The Actual Paint Stroke

It is important to "trigger" the gun after gun movement (arm movement) has started and release trigger (shut gun off) before gun movement ends. Gun movement is always longer than actual paint (spray) stroke. In that manner, even blending and uniform paint coat thickness is achieved over the entire surface. When the gun is in motion as the trigger is pulled, it deposits an even amount of paint.

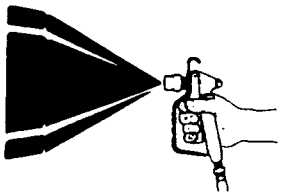
Overlap the previous pass by half the width of the spray pattern. Aim at the bottom of the previous pass.



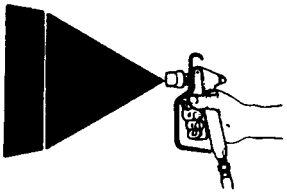
FOR EVEN PAINT COAT OVERLAP HALF THE WIDTH OF EACH PAINT STROKE.

Spray with uniform strokes from left to right and from right to left, holding stroke speed, distance, lapping, and triggering as uniform as possible.

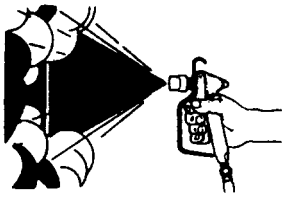
TAILING



GOOD PATTERN



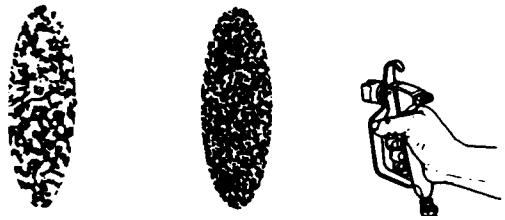
FOG, OVERSPRAY



Adjust pressure control knob so that paint is completely atomized from the spray gun. Insufficient pressure will result in "tailing".

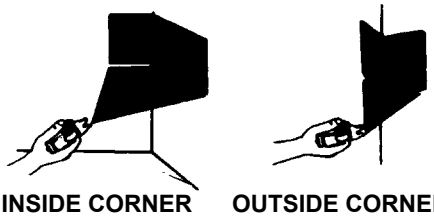
Too much pressure will result in excess fog and overspray, excessive tip wear, and increased sprayer wear and tear.

POOR PATTERN **GOOD PATTERN**



Always use the lowest pressure possible to obtain desirable results.

Test the spray pattern on a piece of cardboard or other surface.



INSIDE CORNER **OUTSIDE CORNER**

"Inside" and "outside" corners can be sprayed.

Aim the spray gun toward the center of the corner. The spray pattern is divided in half, and the edges of the spray pattern on both walls are the same.

AIRLESS SPRAY GUN TROUBLESHOOTING

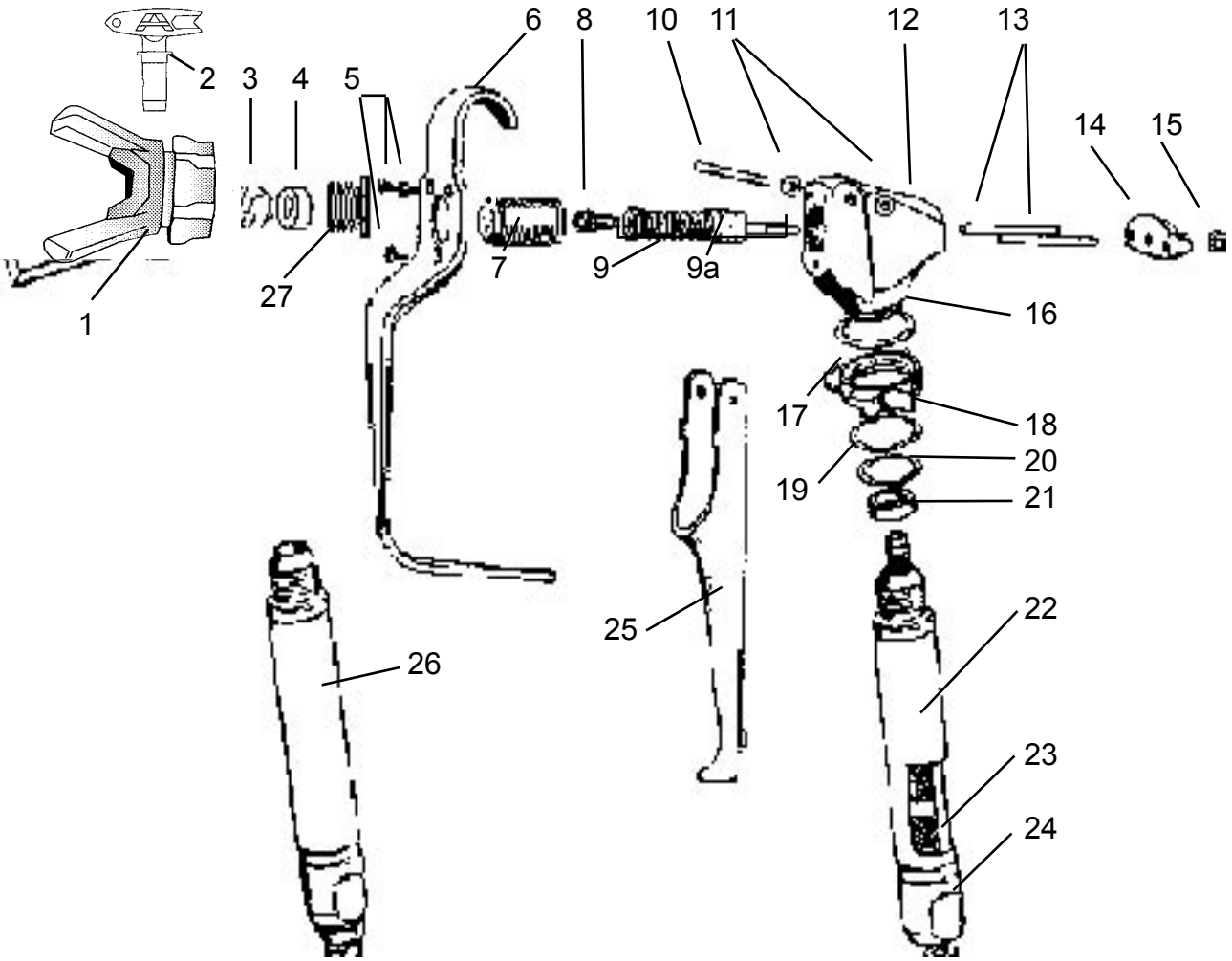
DEFECTS	CAUSE	CORRECTION
Coarse spray	Low pressure	Increase the pressure.
Excessive fogging (overspray)	High pressure Material too thin	Reduce the pressure to satisfactory pattern distribution. Use less thinner.
Pattern too wide	Spray angle too large	Use smaller spray angle tip.
Pattern too narrow	Spray angle too small	Use larger spray angle tip (if coverage is OK, try tip in same nozzle group)
Too much material	Nozzle too large Material too thin Pressure too high	Use next smaller nozzle. Reduce pressure
Too little material	Nozzle too small Material too thick	Use next larger nozzle
Thin distribution in center of pattern "horns".	Worn tip Wrong tip	Change for new tip. Use nozzle with a narrow spray angle.
Thick skin on work	Material too viscous Application too heavy	Thin cautiously. Reduce pressure and/or use tip in next smaller nozzle group.
Coating fails to close & smooth over	Material too viscous	Thin cautiously.
Spray pattern irregular, deflected	Orifice clogged. Tip damaged	Clean carefully. Replace with new tip.
Craters or pock "long" sol marks, bubbles on work	Solvent balance	Use 1 to 3% "short" solvents remainder (this is most likely to happen with material of low viscosity, lacquers etc.)
Clogged screens	Extraneous material in paint. Coarse pigments Poorly milled pigments (paint pigments glocculate cover screen. Incompatible paint mixture & thinners.	Clean screen Use coarse screen if orifice size allows. Try different thinner in fresh batch of paint.

TEST THE PATTERN

Good, full pattern.

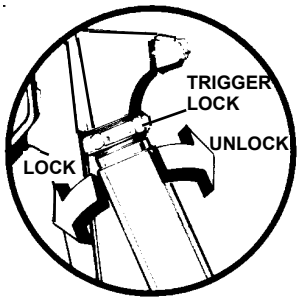
Spotty pattern
Increase Pressure.

AIRLESSCO 007X & XL SPRAY GUNS



Item No.	Part No.	Description	Item No.	Part No.	De-
1	561-001	Rev-Guard ("F" thread)	15	120-021	Nut
	561-002	Rev-Guard ("G" thread)	16	120-056	Washer
2	560-xxx	Rev-Tip	17	120-048	Safety Latch or Trigger Lock
3	561-025	Rev-Tip Seal-metal	18	120-055	Wave Washer
4	561-026	Rev-Tip Seal-O-ring	19	120-049	Retaining Ring
5	120-023	Screw (3)	20	120-082	Seal
6	120-005	Guard	21	120-090CX	Filter-Complete-Coarse
7	120-035	Valve Seat Complete		120-090FX	Filter-Complete-Fine
8	120-037	Valve Ball with Holder	22	120-088	Spring
9	120-011	Valve Spring Unit	23	120-087	Handle Complete 007X
9a	120-033	Seals Teflon (2)	24	115-019	Connector
10	120-022	Trigger Pin	25	120-044	Trigger
11	120-046	Washer (2)	26	120-085	Handle with Swivel 007XL
12	120-002	Gun Head	27	032-012	F/G Thread Adapter
13	120-045	Retainer Pin (2)			
14	120-020	Retainer			

AIRLESSCO 007X & 007XL SPRAY GUN



ADJUSTING SPRAY GUN

Hold gun with trigger locked (25) and push trigger against the lock (17). Then adjust nut (15) so that the retainer (14) will move freely back and forth approximately 1/32" to allow valve spring unit (9) to seat the valve ball (8).

IMPORTANT: Readjust nut (15) periodically for wear of valve seat (7) and valve ball (8); otherwise, leakage will occur.

TO REPLACE THE VALVE BALL HOLDER (8)

KIT #2-007

3 Tip Washers 1 Valve Seat (7)
1 Valve Ball Holder (8) 2 Seals-Teflon (9a)

Dismantling:

1. Unscrew Rev-Guard and remove spray tip and seal.
2. Unscrew valve seat (7) with 1/2" socket wrench.

Caution

When removing and replacing valve seat (7), hold the trigger (25) in the open position so that the valve ball (8) is lifted off the valve seat. Failure to lift the

3. Unscrew valve ball (8) together with the brass part of the assembly (9). Do not pull on the parts or the packing may get damaged.
4. Unscrew the valve ball (8) from the brass part of the assembly (9).

Reassembling is done in reverse sequence. Screw the new valve ball with holder (8) into the brass part (9).

Caution

Tighten valve ball and brass part on threaded end of the shaft by hand until you feel a positive stop. Do not tighten with a wrench since this could result in breaking the shaft.

Note it is recommended that you change the valve seat (7) and valve ball (8) at the same time.

REPLACING THE VALVE SPRING UNIT (9)

KIT#3-007

3 Tip Washers 1 Valve Seat (7)

1. Repeat dismantling procedure as outlined above under Steps 1 through 3.
2. Unscrew nut (15), remove retainer (14) with retainer pins (13) and pull shaft of the valve spring unit (9) out of the gun head (12).
3. Clean gun head (12) bore with solvent and small brush. Do not use any sharp objects to scrape away dried paint, as they would cause leakage around the seal.

Reassembling is done in reverse sequence. ***IMPORTANT: When reassembling, install valve spring unit (9) with spring loose.***

Push firmly into gun head by hand. Install retainer pins (13), retainer (14) and nut (15) loosely onto valve spring unit (9). By hand turn front of valve spring unit clockwise, tightening the valve spring unit until you feel a positive stop. At that point, continue tightening the valve spring another 1/8 turn expanding the Teflon seals against body of gun.

Caution

Do not tighten beyond 1/8 turn as this can result in breaking the valve spring unit shaft. Continue reassembly and adjustment as described above.

SPRAY TIP SELECTION

Spray tip selection is based on paint viscosity, paint type, and job needs. For light viscosities (thin paints), use a smaller tip; for heavier viscosities (thicker paints), use a larger tip size.

Spray tip size is based on how many gallons of paint per minute can be sprayed through the tip. Do not use a tip larger than the maximum pump flow rate or capacity the sprayer can accommodate. Pump flow rate is measured in gallons per minute (GPM).

TIP SELECTION CHART

FULL RANGE OF TIP SIZES

REV -TIPS (P.N. 560-XXX)
FLAT TIPS (P.N. 570-XXX)

*Tip Identification: All tips have a 6 digit part number. The first 3 digits identifies it as a Rev-Tip (560) **or** a Flat Tip (570). The 4th digit is the fan width - the number is half the fan width, ie. 5 means a 10" fan when it is held 12" from the surface. The 5th and 6th digit is for the orifice size and is measured in thousands of an inch, ie: 17 = 0.017 inch- the higher the number, the larger the tip.*

For sizes not shown, call factory for availability.

Fan Width in.	(mm)	Orifice Size (Inch) .009	.011	.013	.015	.017	.019	.021	.023	.025	.027	.029/.031	.035
4-6	(102-152)	209	211	213	215	217	219		223	225	227		
6-8	(152-203)	309	311	313	315	317	319	321	323	325	327	229	
8-10	(203-254)	409	411	413	415	417	419	421	423	425	427	431	
10-12	(254-305)		511	513	515	517	519	521	523	525	527	531	535
12-14	(305-356)			613	615	617	619	621	623	625	627	631	635
14-16	(356-406)				715	717		721					
16-18	(406-457)				815		819	821				831	
Water Flow Rate (gpm)		.08	.12	.18	.24	.31	.38	.47	.57	.67	.77	1.03	1.31
Tip Flow Rate-water (lpm) (Water @ 2000 psi, 138 bar)		.30	.49	.69	.91	1.17	1.47	1.79	2.15	2.54	2.96	3.90	4.98
Paint Flow Rate (gpm)		.06	.10	.15	.21	.27	.33	.40	.49	.58	.66	.88	1.12
Tip Flow Rate-water (lpm) (latex paint @ 2000 psi, 138 bar/1.36 spec.)		.26	.38	.57	.79	1.02	1.25	1.51	1.85	2.20	2.50	3.33	4.24
Pump Minimum -pa (gpm)		.25	.25	.25	.33	.40	.50	.60	.75	.88	1.0	1.25	1.5
Output* Rate -water (lpm) *Pump will support tip worn to next larger size.		1.0	1.0	1.0	1.25	1.5	1.9	2.3	2.8	3.3	3.8	4.7	5.7
Gun Filter **C**= Coarse - 60 mesh **F**= Fine - 100 mesh		F	F	F	F,C	C	C	C	C	REMOVE FILTER			
Wood Interior	Lacquer, Varnish Stain, Sealer Enamel	● ●	● ●	●	●								
Wood Exterior	Exterior Stain Vinyl, Acrylic,Latex				●	●	●	●					
Masonry	Vinyl, Oil Base Alkyd Latex, Acrylic Block Filler Elastomer				● ●	● ●	●	● ● ●	● ●	● ●	● ●	● ●	●
Ceiling	Hi Build, Mil White							●	●				
Structural Steel	Heavy Coatings							●	●	●	●	●	●

Consult your paint manufacturer for application recommendation.

PATTERN WIDTH

Thickness of the paint coat per stroke is determined by spray tip "fan width", rate of the spray gun movement, and distance to surface.

SPRAY TIP SELECTION

Two tips having the same tip size, but different pattern widths will deliver the same amount of paint over a different area (wider or narrower strip).

A spray tip with a narrow pattern width makes it easy to spray in tight places.

SPRAY TIP REPLACEMENT

During use, especially with latex paint, high pressure will cause the orifice to grow larger. This destroys the pattern.

Replace tips before they become excessively worn. Worn tips waste paint, cause overspray, make cutting-in difficult, and decreases sprayer performance.

REGULAR MAINTENANCE

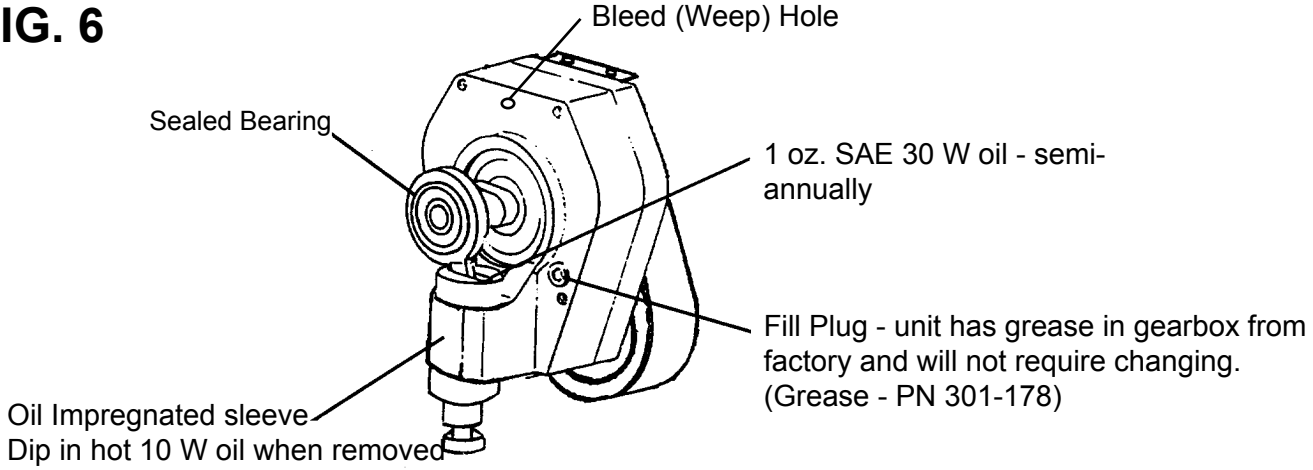
1. Always stop the pump at the bottom of its' stroke when you take a break at the end of the day. This helps keep material from drying on the rod and damaging the packings.

2. Keep the displacement pump packing nut/wet cup 1/3 full of TSO at all times. The TSO helps protect the packings and rod.

3. Inspect the packing nut daily. It should be tight enough to stop leakage, but no tighter. Overtightening will damage the packings.

OIL AND LUBRICATION INSTRUCTIONS

FIG. 6


Bleed (Weep) Hole
Sealed Bearing
1 oz. SAE 30 W oil - semi-annually
Fill Plug - unit has grease in gearbox from factory and will not require changing. (Grease - PN 301-178)
Oil Impregnated sleeve
Dip in hot 10 W oil when removed

ELECTRIC MOTOR MAINTENANCE

1. LUBRICATION - This motor is supplied with pre-lubricated ball bearings, lubricated for the life of the bearing.

2. MOTOR BRUSHES need periodic inspection and replacement as wear indicates. Brush wear is greatly influenced by individual application. it is recommended that brush wear be checked at early intervals of operation in order to determine future required inspection. Standard Leeson brushes have an initial length of 1 and 1/4". When the brushes are worn to a length of 5/8" they should be replaced.

TO CHANGE THE BRUSHES:

1. Unplug the machine.
2. Remove the cover over the motor.
3. Open the two covers at the rear of the motor.
4. Loosen the screw under the brush.
5. Pull out the wire.
6. Push the brush retainer clip in and withdraw.
7. Remove the worn brushes.
8. Install new brushes in the reverse order.

For long life, new brushes (Part No. 301-146 for 110V service, Part No. 301-147 for 220 - 240 V service) need to have a run in period. After changing brushes, set the machine for spraying. With a bucket of Coro-Chek and water, a 50' 1/4" airless hose, airless gun and tip on unit, open the prime valve and switch on. The pump will now prime. With pump running in the prime mode, turn the pressure control knob to high pressure. (The pump has to cycle fast with no pressure in the pump). Now run the pump for 20 minutes.

FIELD TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
Unit doesn't prime.	Airleak due to: 1. Loose Suction Nut 2. Worn O-Rings	 1. Tighten Suction Nut 2. Replace O-Rings (106-018 & 106-017) on inlet valve.
	Stuck or Fouled Balls	Service inlet and outlet valves. See pg 19
	Prime/Pressure Relief valve not opening.	Clean or replace Prime Valve (100-180).
Unit primes, but has no or poor pressure.	Pressure set too low. Filter(s) are clogged.	Turn up pressure. Clean or replace gun filter, inlet filter and/or manifold filter.
	Outlet Valve fouled or worn.	Service OutletValve. See pg 19
	Prime/Pressure Relief valve bypassing.	Clean or replace Prime Valve (100-180).
	Packings and/or piston worn.	1. Tighten Packing Nut. See pg 21 2. Repack unit. See pg 20-21
Unit does not maintain good spraying pressure.	Blown spray tip.	Replace Spray Tip.
	Packings and/or piston worn.	Repack unit. Replace Piston.
	Outlet seat & ball worn.	Replace Outlet seat and ball.
Unit does not run.		See electrical troubleshooting on page 29.

SERVICING FLUID PUMP

Note: Check everything in the Troubleshooting Chart before disassembling the sprayer.

FLUID PUMP DISCONNECT

1. Flush out the material you are spraying, if possible.
2. Follow the Pressure Relief Procedure on Page 6. Stop the pump in the middle of down stroke.
3. Remove the suction tube and fluid hose (if so equipped) from the fluid pump.
4. Remove 2 retaining rings and slip the sleeve of the coupling down and remove both coupling halfs. This will disconnect fluid pump from the connecting rod.
5. Unscrew the two tie rod locknuts.
6. Pull the pump off the tie rods.

FLUID PUMP REINSTALL

1. Loosen the packing nut and extend piston rod to fully up position. Slip sleeve (189-047) over the piston rod.
2. Make sure that spacer tubes (301-048) are in place.
3. Connect connecting rod with fluid pump by installing coupling halfs (189-046). Slide sleeve over coupling halfs. Secure with retaining ring (189-048).
4. Secure the fluid pump housing to the tie rods (100-328) and screw locknuts with washers on loosely.
5. Tighten the tie rod locknuts evenly to 30 ft. lb.

NOTE: After all the rod locknuts are tight, the alignment of both rods should allow easy assembly and disassembly of the coupling. If any binding, loosen and retighten all the rod locknuts to improve the alignment. Misalignment causes premature wear of seal and packings.

6. Tighten the packing nut clockwise until resistance against the packings can be felt. Turn it 1 full turn more.

7. Start the pump and operate it slowly (at low engine speed) to check the piston rod for binding. Adjust tie rod lock nuts if necessary to eliminate binding.

8. Prime the unit and run at maximum pressure for several minutes, then release the pressure and repeat step 6.

9. Fill the wet cup (packing nut) about 1/3 full of TSO (Throat Seal Oil)

SERVICING INLET & OUTLET VALVES

INLET VALVE (SEE FIG. 7 & 9)

1. Using the rod collar tool (189-211), screw the suction nut (187-018), containing intake seat support (187-017), off of the fluid body (187-313).
2. Remove the inlet seat (187-065), O-ring (106-017), inlet ball (187-020) and ball cage (187-016) with O-ring (106-018).
3. Clean all parts and inspect them for wear or damage, replacing parts as needed. Old "O" rings should be replaced with new ones.

NOTE: Inlet seat (187-065) is reversible.

4. Clean inside of fluid body (187-313).
5. Reassemble the valve and screw it onto the fluid body if no further service is needed.

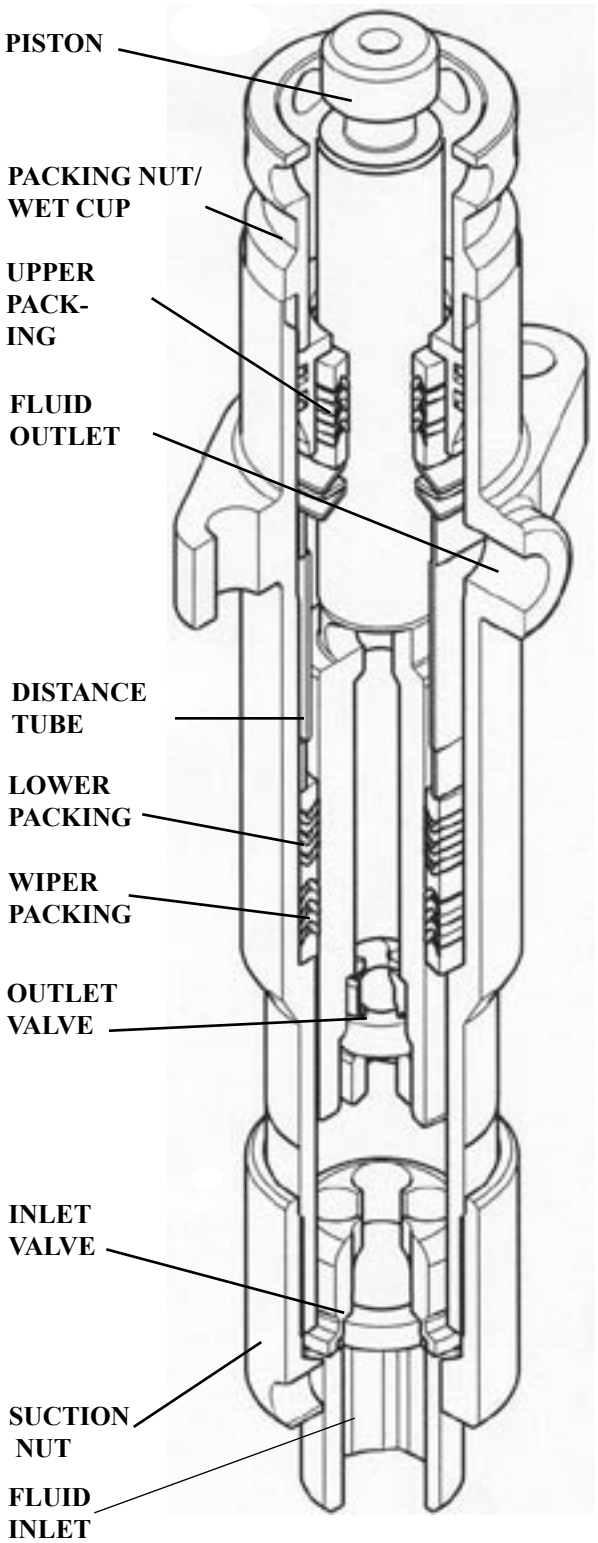
PISTON, OUTLET VALVE (SEE FIG. 7 & 9)

1. Stop piston rod in middle of it's stroke. Remove retaining rings (189-048).
2. Slip the sleeve (189-047) off the coupling halves (189-046) and remove both coupling halves. This will disconnect piston rod from connecting rod and gearbox assembly.
3. Screw the suction nut (187-018) off the pump and remove inlet valve assembly.
4. Using the rod collar tool, loosen the packing nut (CCW) and push the piston down and out of the fluid body.
5. Place piston holder (187-248) in a vise. Slide the piston into the holder and lock in place with a 1/4" pin (187-250).
6. Clean all parts and inspect them carefully for wear or damage. Inspect the outside of the piston rod for scoring or wear. Replace these parts if needed. A worn piston rod will cause premature wear of packings.
7. Using a 3/8" allen wrench to unscrew the outlet seat support (187-051) from the piston (187-330).
8. Remove the outlet seat (187-061), O-ring (106-021), outlet ball (115-022) and ball cage (187-062).
9. Inspect the outlet ball and seat for wear. Replace as required.

NOTE: Inlet seat (187-061) is reversible.

10. Install parts back into piston rod as per Fig. 9, page 20. Place two drops of loctite No. 242 (blue) on threads of the outlet seat support before assembling and torque to 20 ft-lbs.

FIG. 7



V-PACKING REPLACEMENT

V-PACKING REPLACEMENT KIT
SEVERE DUTY- PART NO. 187-040
Contains: Leather & Plastic Packings, Teflon & Viton O-Rings, Balls & plastic dual sided female adaptor & Larger Male Glands.

GLAND KIT - PN 187-064

V-PACKING REPLACEMENT INSTRUCTIONS

1. Remove the fluid pump as per the "Fluid Pump Disconnect" instructions on page 17.

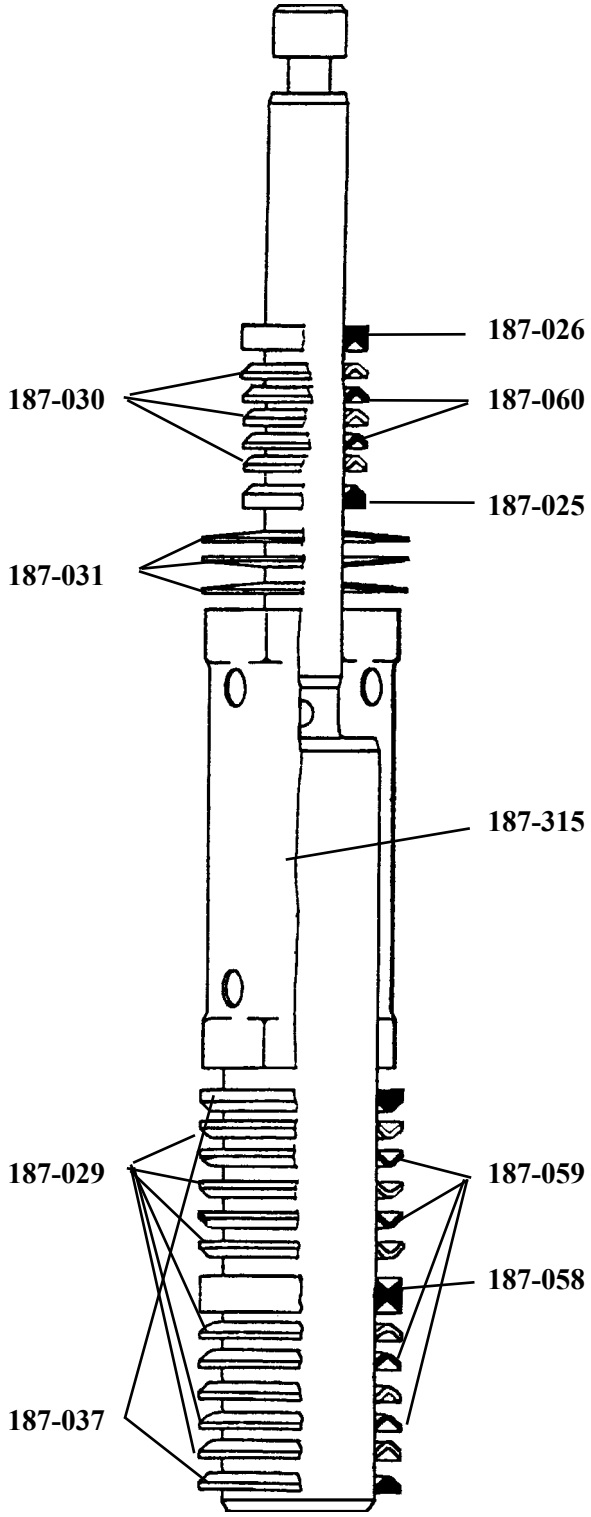
2. Unscrew and remove the inlet valve per instructions on page 18.

3. Unscrew & remove the packing nut (187-046). Push the piston rod down through the packings and out of the pump. Utilizing packing removal tool (187-249) the complete packing set can be removed quickly and easily. Another method is to wrap some masking tape around the bottom of the piston. Now push the piston back through the pump and remove through the top. The packings and glands will be removed with the piston rod, leaving the fluid body (187-313) empty.

4. Disassemble and clean all parts for reassembly. Discard old packings and lower glands. **Save upper glands (187-026 & 187-025) for reuse.**

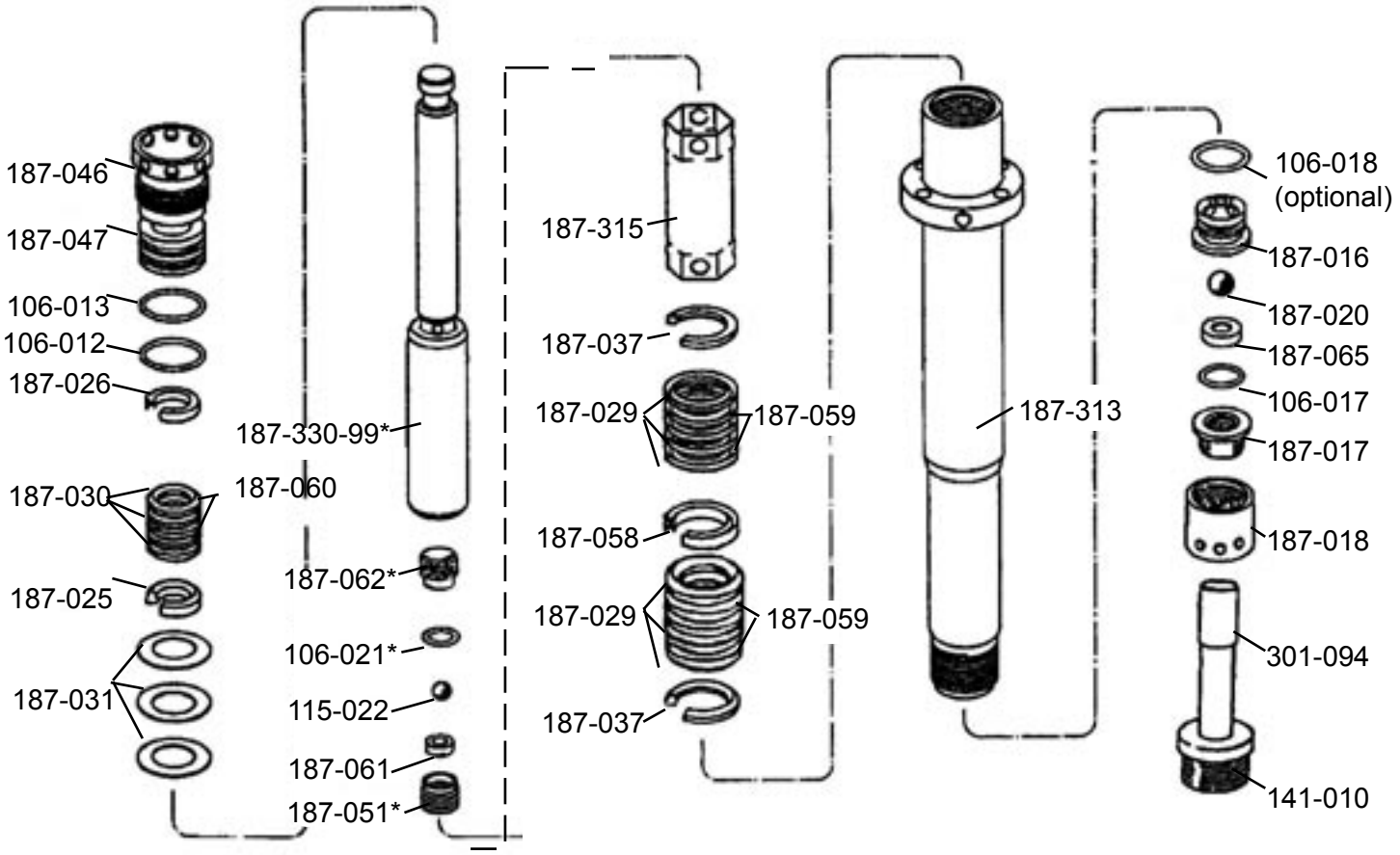
5. Remove the outlet seat support, outlet seat, outlet ball, O-ring and ball cage as previously described on page 18.

FIG. 8



V-PACKING REPLACEMENT (Continued)

FIG. 9



* INCLUDED WITH 187-330-99 PISTON ASSEMBLY

REASSEMBLY

6. Lubricate leather packings in lightweight oil for 10 minutes prior to assembly.
7. Remove masking tape from piston. (if used)
8. Reassemble all parts onto piston in the following order: (See Fig. 8)
   a. Start with lower male gland (187-037)
   b. Five V-Packings (187-029 &187-059). "V" inverted.
   c. Female adaptor (187-058)
   d. Five V-Packings (187-029 & 187-059). "V" up.
   e. Upper Male gland (187-037)
   f. Slide on distance tube (187-315)
   g. Three Belleville Springs (187-031) starting with the first spring facing down (⌒) and next facing up (⌣) and the third facing down (⌒).
   h. Slide on upper male gland (187-025) with bevel facing up.
   i. Five V-Packings (187-030 & 187-060). "V" inverted.
   j. Female Gland (187-026)
   k. Slide on the V-Packing holder (187-047) and O-rings (106-013 & 106-012) over upper packings.
9. Lubricate inside of cylinder & outside of packings, then slide complete assembly into the fluid body (187-313). Thread packing nut (187-046) into cylinder & tighten (handtight).
10. Install the lower check valve and tighten the lower check valve nut (187-018).
11. Connect the pump to the machine as per fluid pump reinstall procedure on page 17.
12. Tighten the packing nut (clockwise) until resistance is felt against the belleville springs.
13. **Now turn it 1 turn clockwise.**
14. Run unit to maximum pressure for 10 minutes, relieve pressure, and repeat packing nut adjustment.

MANIFOLD FILTER - PN 111-200-99

FIG. 10

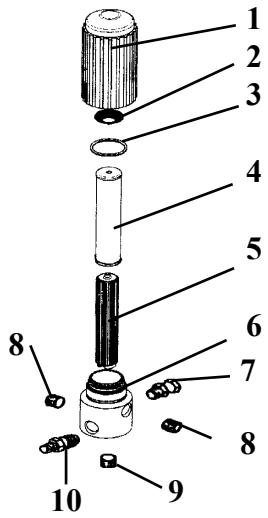


FIGURE 10 PARTS LIST		
ITEM	PART NO.	DESCRIPTION
1	111-202	Base*
2	301-356	Spring*
3	106-007	O-Ring*
4	111-204	Filter
5	111-203	Support*
6	111-201	Base*
7	100-101	Swivel
8	100-129	Plug 3/8" (2)
9	100-028	Plug 1/4"
10	100-109	Nipple 3/8 x 1/4
*	111-200	Filter

PAINT SYSTEM - PN 301-454

FIG. 11

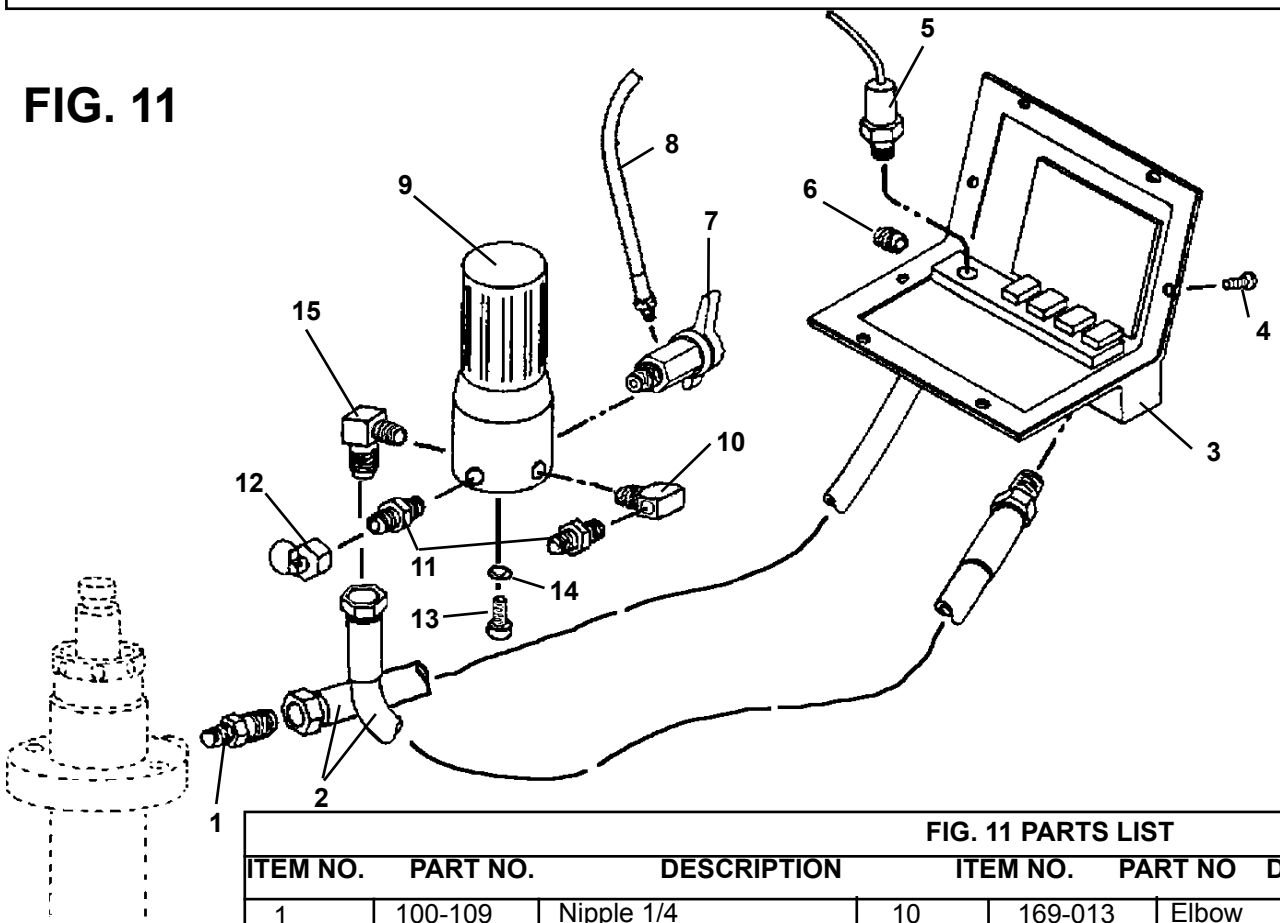
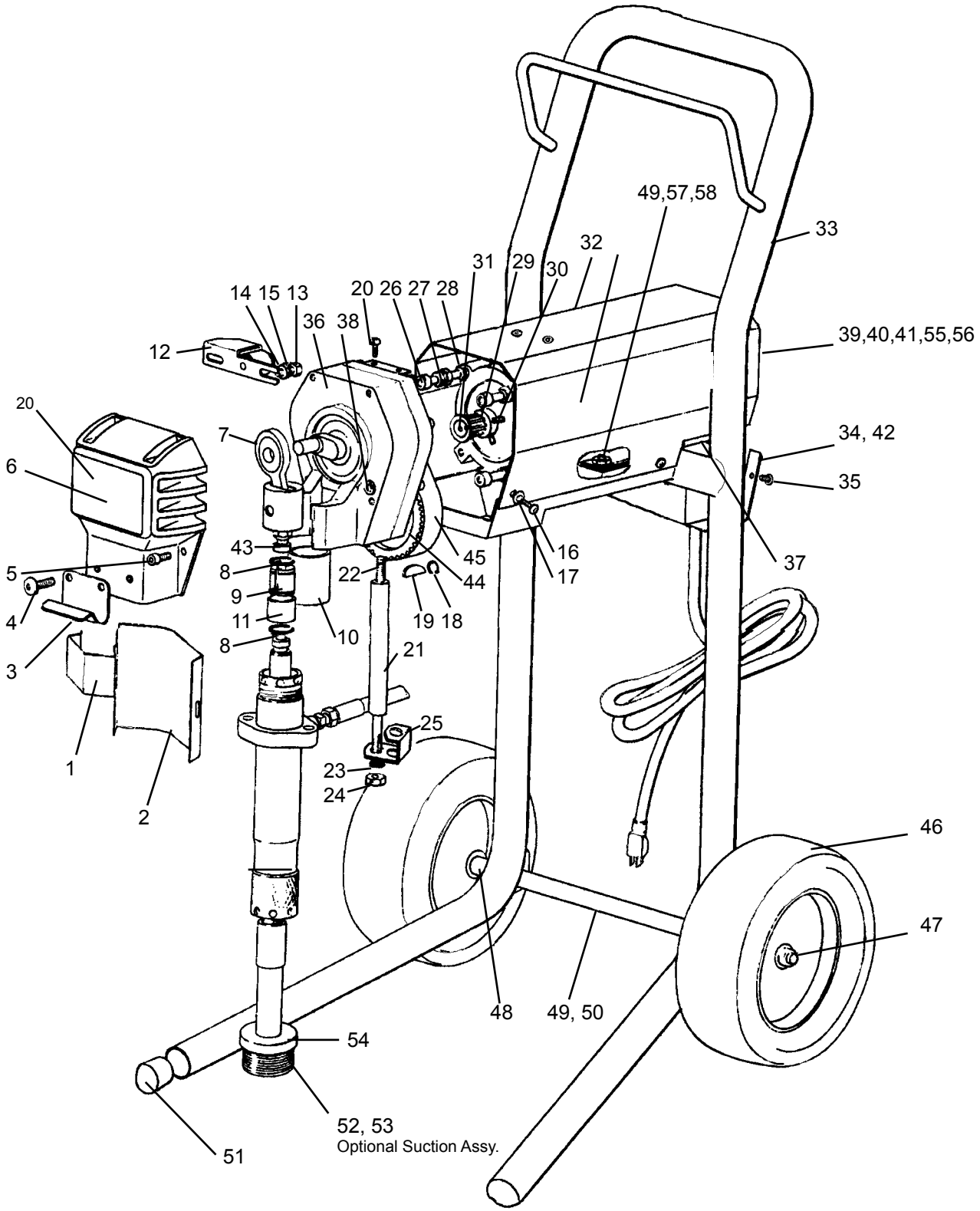


FIG. 11 PARTS LIST					
ITEM NO.	PART NO.	DESCRIPTION	ITEM NO.	PART NO	DESCRIP-
1	100-109	Nipple 1/4	10	169-013	Elbow
2	301-308	Hose (2)	11	100-109	Nipple (2)
3	301-318-99	Pressure Control Ass'y	12	100-160	Plug
4	111-037	Screw (8)	13	100-312	Screw (2)
5	331-294-99	Sensor	14	331-103	Washer (2)
6	100-028	Plug 1/4	15	167-016	Elbow
7	100-180	Prime/Pres. Relief Valve	not	100-050	Reducer (1)
8	331-424	Bypass Hose			
9	111-200	Manifold Filter			

COMPLETE SPRAYER

FIG. 12



COMPLETE SPRAYER PARTS LIST

ITEM NO.	PART NO.	DESCRIPTION
1	301-189	Shield- Front
2	301-092	Shield- Rear
3	301-105	Hook
4	100-360	Screw (2)
5	100-312	Screw (4)
6	301-320	Cover
7	301-333	Connecting Rod Ass'y (10/11 Series)
	301-291	Connecting Rod Ass'y (8 Series)
8	189-048	Retaining Ring (2)
9	189-046	Coupling Set
10	301-047	Sleeve Bearing
11	189-047	Coupling Cover
12	301-193	Tensioner Ass'y
13	111-044	Screw (2)
14	100-349	Washer (2)
15	113-023	Lock Washer, (2)
16	111-037	Screw (4)
17	301-135	Grommet (6)
18	100-332	Retaining Ring
19	301-139	Woodruff Key
20	301-337	Screw (2)
21	301-048	Spacer - Tube (2)
22	100-328	Stud (2)
23	140-035	Washer, Lock (2)
24	140-051	Nut (2)
25	301-173	Bracket - Return Tube
26	136-033A	Screw (3)
27	301-099	Screw (3)
28	140-051	Nut (3)
29	301-233	Sheave
30	115-041	Set Screw (4)
31	112-029	Key
32	301-321	Cover
33	301-205	Frame w/ filter bracket
	301-206	Frame w/o filter bracket
	301-414	Frame Assly w/ filter mount
	301-415	Frame Assly. w/o filter mount
34	301-318 99	Pressure Control Ass'y
35	111-037	Screw (8)
36	301-204-99	Gearbox 1" (10/11 Series)
	301-203-99	Gearbox 3/4" (8 Series)
37	301-316	Rubber Edge (1.17') (makes two)
38	100-028	Plug 1/4 NPT
39	301-190	Fan
40	301-191	Retaining Clip, Fan
41	117-052	Screws (3)
42	101-060	Label High Voltage
43	301-046	Rod End
44	301-237	Pulley, Cog
45	301-231	Cog Belt
46	189-427	Solid Wheel (2)
47	143-029	Set Collar (2)
48	167-014	Spacer (no longer used)
49	140-029	Washers (no longer used)
50	113-056	Axle
51	301-134	Stopper (2)
52	301-517-99	Suction Ass'y 16" (5 gal)
53	301-543-99	Suction Ass'y 36" (55 gal)
54	141-010	Inlet Strainer
55	301-106A	1 1/4 HPDC Motor (10/11 Series)
	301-023A	1 HPDC Motor (8 Series)
56	301-089	Fan Cover
57	113-022	Nut (4)
58	113-023	Washer, Lock (4)

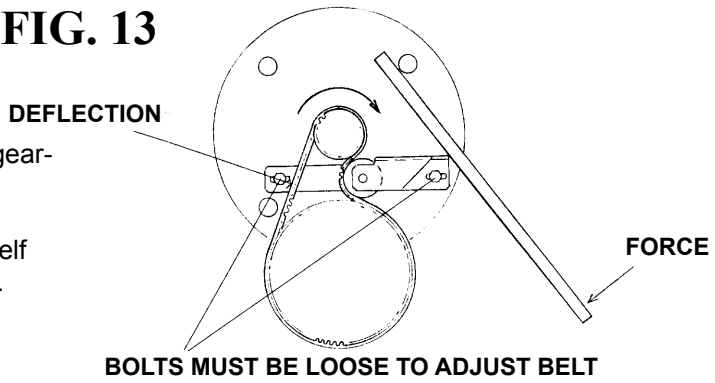
LABEL KITS

PART NO.	UNIT
301-430	AIRLESSCO SL810
301-435	ALLPRO 810E (910E)
301-431	AIRLESSCO SL1100
301-436	ALLPRO 1000E (1110E)

REPLACEMENT OF BELT/BELT ADJUSTMENT

NOTE: The Cog Belt System does not require alignment. When upper sheave is placed on motor shaft it is pushed on until a positive stop is reached. The set screws (Fig. 12, Item 30) are then loctited. The lower pulley is placed on gear-box and held in place with keyway and snap ring (Fig. 12, Item 18) The flange on upper sheave holds the belt in alignment and the belt self aligns on lower pulley eliminating having to align.

FIG. 13



REPLACEMENT OF BELT:

1. Remove cover (Fig. 12, Item 32) from unit.
2. Remove Tensioner Assembly (Fig 13). Then loosen screws (Fig. 12, Item 27). Move gearbox forward to allow removal and replacement of belt.
3. Retighten screws into gearbox until they bottom out. (Fig. 12, Item 27) This will align gearbox correctly.
4. Replace tensioner with bolts and leave loose to allow adjusting belt tension.
5. Tighten belt as shown in Figure 13. When properly tightened the deflection play should be 1/4 inch when pushing hard with thumb. (20 ft/lbs)

NOTE: When placing belt on pulleys and inserting the tensioner against belt, ensure cogs on belt are engaged into cogs on pulleys before tightening belts. Rotating upper pulley while holding the tensioner against the belt will allow proper engagement of cogs prior to tightening.

SUCTION ASSEMBLY - 5 GAL. - P.N. 301-090-99

FIG. 14

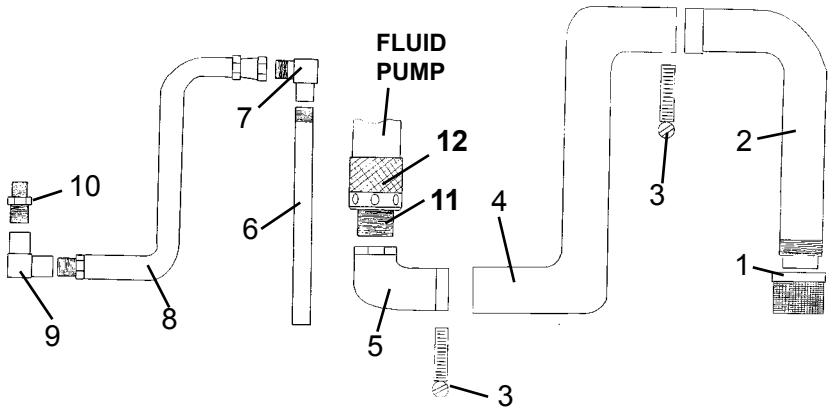


FIG. 14 PARTS LIST		
ITEM NO.	PART NO.	DESCRIPTION
*	301-517	Suction Hose Ass'y (includes items 1-5)
1	141-008	Inlet Strainer
2	301-514	Suction Tube
3	301-516	Hose Clamps (2)
4	301-513A	Hose
5	100-165	Elbow
6	188-377	Return Pipe
7	100-128	Elbow
8	100-012	Whip
9	100-126	Elbow **
10	100-385	Reducer**
11	187-017	Fitting
12	187-018	Suction Nut

*** used on units equipped with either the 100-180 or 331-050 prime valves. The 301-090 suction ass'y also includes the 100-081A Elbow for units with the 138-001 marathon prime valve.*

SUCTION ASSEMBLY - 55 GAL. - P.N. 301-543-99

FIG. 15

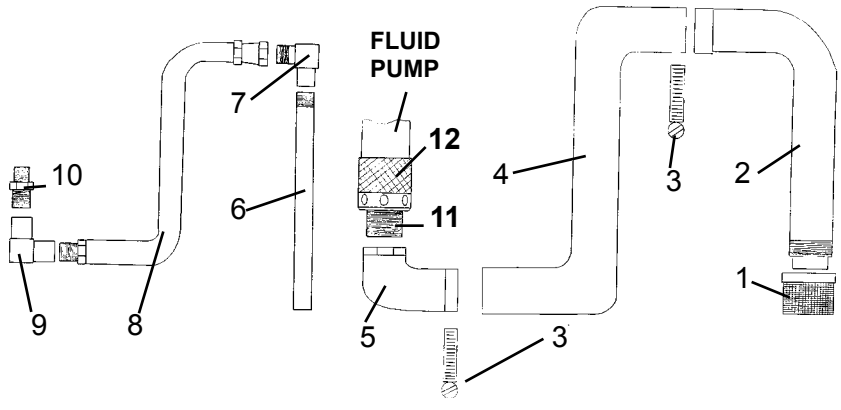


FIG. 15 PARTS LIST		
ITEM NO.	PART NO.	DESCRIPTION
1	141-008	Inlet Strainer
2	301-545	Suction Tube
3	301-516	Hose Clamps (2)
4	301-544	Hose
5	100-165	Elbow
6	188-377	Return Pipe
7	100-128	Elbow
8	100-012	Whip
9	100-126	Elbow **
10	100-385	Reducer**
11	187-017	Fitting
12	187-018	Suction Nut

*** used on units equipped with either the 100-180 or 331-050 prime valves. The 301-090 suction ass'y also includes the 100-081A Elbow for units with the 138-001 marathon prime valve.*

PRESSURE CONTOL ASS'Y CALIBRATION

NOTE: Anytime a sensor, pressure control assembly or both are replaced, the these calibrations must be performed.

1. ZERO CALIBRATION

1. Place prime/pressure relief valve in the prime (open) position.
2. Set the pressure control knob to the minimum setting (CCW).
3. Detach the pressure control unit.
4. Place the jumper (PN 117-207) on both prongs of the "P-ZR" terminal. Note: This jumper comes with a new Pressure Control Assemblyand is installed on the "P-ZR" terminal. If you are "Zero Calibrating" a Pressure Control Assembly presently in the unit, remove the jumper from one prong of the "P-ZR" terminal and place on both prongs of the "P-ZR".
5. Turn machine "ON" and ensure it is not cycling.
6. If the yellow light on the electrical board is on, use an insulated screwdriver to turn the "LCD ZERO" trimpot (P501) counter-clockwise until the light goes out. Then turn it clockwise until the light just comes back on. At this point, the "Zero" Calibration is complete.
7. If the yellow light is OFF, turn the "Zero" trimpot clockwise, just until the light comes on and stop. At this point "Zero" Calibration is complete.
   NOTE: If your machine is equipt with the optional LCD, as a double check to confirm that the pump is at true zero the LCD should read "0000" when the yellow light just comes on.
   NOTE: If the yellow light remains constantly "ON", or "OFF" during this calibration, the sensor is defective and should be replaced.
8. When calibration is complete, move jumper from both prongs of the "P-ZR" terminal to single prong of the "P-ZR" Terminal.

2. PRESSURE CALIBRATION

1. Attach a 50', 1/4" airless hose, airless gun with 0.017 tip and a 5000 psi pressure gauge to the pump.
2. Place the suction tube into a bucket of Coro-chek and water.
3. Turn prime/pressure relief valve to the prime (open) position.
4. Complete the ZERO calibration, as per "ZERO CALIBRATION".
5. Turn pressure control knob clockwise until machine starts to prime.
6. Place the prime/pressure relief valve in the pressure (closed) position.
7. While watching pressure glycerine gauge (not the LCD) , slowly adjust the Pressure Trimpot (P502) (clock-wise to increase and counter-clockwise to decrease) until the maximum static pressure is 3000 psi, with the pressure control knob fully clockwise. Trigger the gun several times to ensure pressure returns to 3000 psi .

3. LIQUID CRYSTAL DISPLAY CALIBRATION - **(If so equipped)**

1. Complete the "ZERO CALIBRATION" and "PRESSURE CALIBRATION" procedures prior to commencing this calibration.
2. Turn pressure control knob up until system pressure is above 2500 psi (as indicated on glycerin filled pressure gauge) and the machine is not cycling.
3. Use an insulated screwdriver to adjust the LCD Set trimpot (P503). Turn Trimpot CCW until it clicks. Then adjust to match pressure against pressure gauge reading.
4. Move the pressure control knob to different settings and trigger the gun several times to ensure that the LCD continues to match the pressure gauge reading.
5. Reattach Pressure Control Assembly.

4. PHASE LIMIT CALIBRATION

Formerly known as the Low Voltage or Master Voltage Calibration

1. Attach a 50', 1/4" airless hose, airless gun with .017 tip and a 5000 psi glycerin filled pressure gauge to the pump.

2. Place the suction tube into a bucket of anti-freeze (or Coro-Chek) and water.

3. Turn pump on and turn up pressure control until the machine starts to prime.

4. Place the prime/pressure relief valve in the pressure (closed) position.

5. Pressurize pump to 600 psi.

6. Trigger the gun several times noting the deadband (the amount of pressure drop before the pump rebuilds to set pressure).

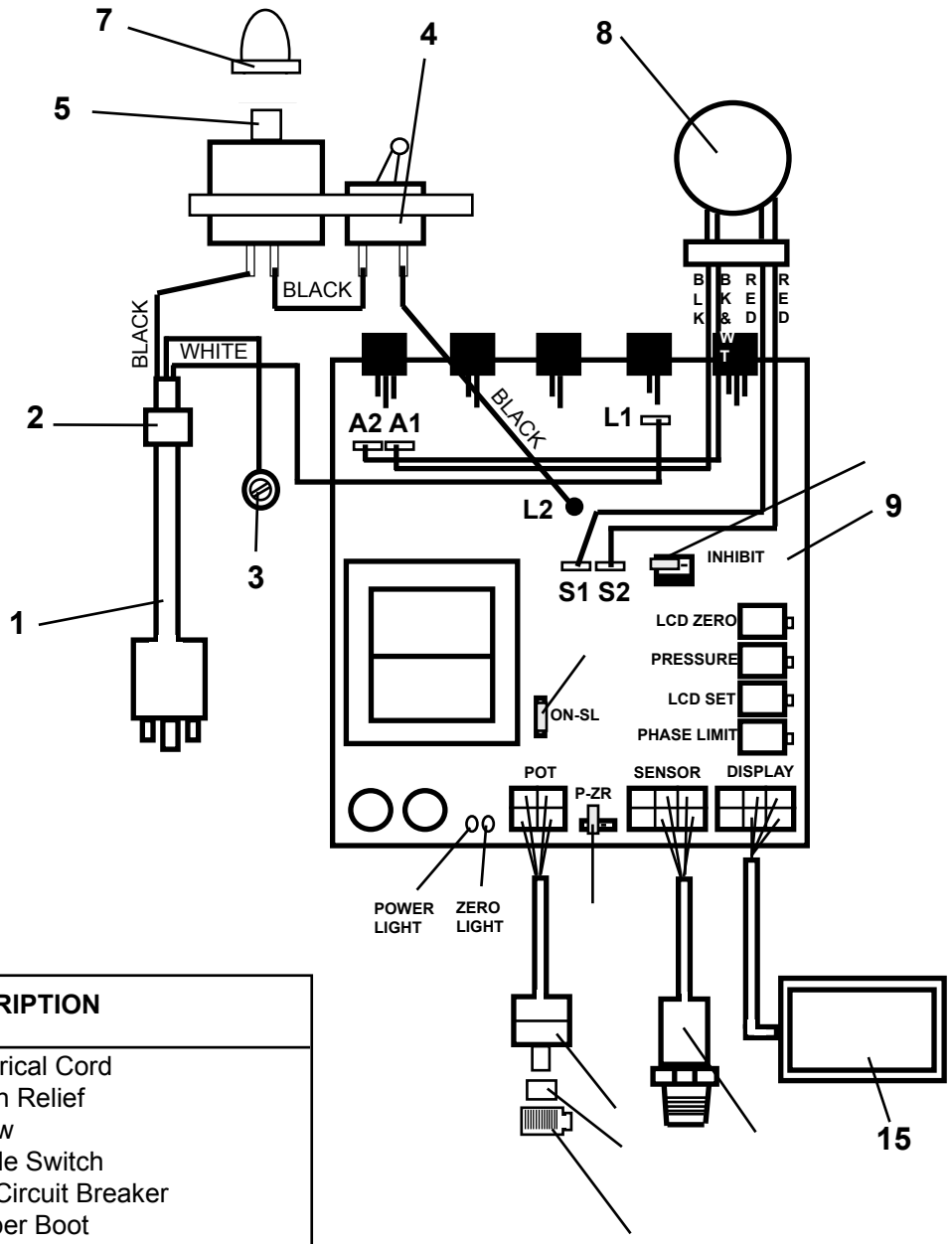
7. If deadband is greater than 150 psi, adjust the phase limit trimpot so that the deadband is less than 150 psi and the pressure increase after the gun trigger is released is less than 250 psi. These pressures are guidelines and may vary slightly from pump to pump.

8. Reattach pressure control assembly to unit.

Note: The 301-318 Revision E pressure control assembly has a reddish brown terminal labelled "Inhibit Switch". At all times there should be a jumper on the two left terminals, which are the closest to the "S2" connection. Also on the Revision E is a terminal labelled "ON-SL". This terminal should always have a jumper on it.

ELECTRICAL SYSTEM

FIG. 16



ITEM NO.	PART NO.	DESCRIPTION
1	331-168	Electrical Cord
2	331-185	Strain Relief
3	331-138	Screw
4	301-083	Toggle Switch
5	301-518	35A Circuit Breaker
7	117-035	Rubber Boot
8		1 1/4 HPDC Motor (10&11 Series)
	301-106A	1 HPDC Motor (8 Series)
9	301-023A	Pressure Control Ass'y
10	301-318-99	Jumper
11	117-207	Sensor
12	331-294-99	Potentiometer
13	331-297	Spacer
14	331-184	Knob
15	117-044	LCD (optional)

TROUBLESHOOTING - Machine does not start

CAUSE	SOLUTION
Control Settings	**STEP 1:** Ensure that the ON-Off toggle switch is in the "ON" position and that the Pressure Control Knob is fully CW (maximum pressure). Also check that the unit is plugged in.
	STEP 2: Lower the pressure control assembly and check if the red power light on the board is lit. If the light is "OFF", proceed to Step 3. If the light is "ON", go to Step 7.
Power Source	**STEP 3:** Use a multimeter to check for 110 volts VAC across the L1 and L2 terminals on the board. If no voltage at these leads, there is no power to the unit. Check power source (outlet, breakers, extension cord and power cord).
Thermal Overload	**STEP 4:** Disconnect the two red motor leads (S1 & S2) and test for continuity between the two leads. Continuity shows that the motor's thermal coupler has not tripped. No continuity means that thethermal coupler has opened due to excessive motor heat. If the motor is still hot to touch, allow to cool and retest. If the motor is cool and there is no continuity on the red leads, contact your local Leeson repair facility to repair/replace the thermal coupler.
Pressure Control Assembly (Board)	**STEP 5:** If all checks out fine in Steps 1 through 4 and the red light is still out, the pressure control assembly is defective and must be replaced.
Sensor	**STEP 6:** If the red light is "ON", the power source, fuse and thermal coupler are okay. Plug another sensor into the board. If the unit starts, the sensor was faulty and must be replaced. When a replacement sensor is not available, use a multimeter to test the resistance between the BLACK and RED wires on the sensor lead. The resistance should be approximately 1.5-3.5 kohms. A faulty sensor usually reads zero resistance (open).
Pressure Control Knob (Potentiometer)	**STEP 7:** With the machine still "OFF", remove the potentiometer lead from the board and read the resistance between the red and black wires. This must be 8 - 12 kohms. If outside this range, replace the potentiometer. NOTE: A bad POT will usually show no resistance (open).
Motor	**STEP 8:** Remove the two black motor leads (A1 &A2) and test for continuity between them. Continuity is an indication that the motor is sound. The lack of continuity, points to a problem in the motor. If there is no continuity on these two leads, check the motor brushes. Ensure thatthe brushes are evenly worn and make solid contact with motor commutator. Replace the brushes if they are less than 3/8" long. If the brushes are okay, replace the motor.
Pressure Calibration	**STEP 9:** Calibrate the pressure control assembly in accordance with the instructions on page 25-26.
Pressure Control Assly. (Board)	**STEP 10:** If the unit fails to calibrate and all components in Steps 1-9 test okay, the pressure control assembly needs to be replaced.

REPLACEMENT OF ELECTRICAL COMPONENTS

WARNING: Always unplug the electrical cord before servicing machine.

NOTE: Anytime the pressure control assembly, sensor or both are replaced, perform the calibrations.

PRESSURE CONTROL ASSEMBLY (Electrical Control Board)

1. Unplug machine's power cord.
2. Remove eight screws (Fig. 12, Item 35) and lower the pressure control assembly.
3. Disconnect all leads from pressure control assembly.
4. Reassemble in reverse order.

SENSOR

1. Remove the screws (Fig. 12, Item 35) and lower the pressure control assembly.
2. Disconnect sensor lead from the board.
3. Unscrew sensor (Fig. 16 Item 11) from pressure control assembly using a 7/8" wrench.
4. Reassemble in reverse order. Use telfon tape on the sensor threads prior to reinstalling it into the pressure control assembly.

POTENTIOMETER

1. Lower pressure control assembly as described above.
2. Disconnect potentiometer lead from pressure control assembly.
3. Use a 1/16" allen wrench, loosen set screw in the potentiometer knob (Fig. 12, Item 14) and remove knob and spacer. (Fig. 12, Item 13).
4. Using a 1/2" wrench or deep socket, remove the nut from the potentiometer shaft assembly.
5. Pull entire potentiometer assembly out of the frame.
6. Replace in reverse order.

ON-OFF TOGGLE SWITCH

1. Lower the pressure control assembly as described above.
2. Disconnect the two wires on the toggle switch (Fig. 16, Item 4).
3. Use a 9/16" wrench to loosen the nut on the toggle switch shaft.
4. Reassemble in reverse order.

THERMAL CIRCUIT BREAKER

1. Lower pressure control assembly as described above.
2. Disconnect the two wires on the breaker (Fig. 16, Item 5).
3. Unscrew rubber boot (Fig. 16, Item 7) from breaker shaft.
3. Use 1/2" wrench to remove the bushing (Fig. 16, Item 6) from the breaker shaft.
4. Remove breaker from frame.

REPLACEMENT OF ELECTRICAL COMPONENTS (Cont)

LIQUID CRYSTAL DISPLAY (LCD)

1. Ensure that the power switch is OFF and that the machine is unplugged.
2. Detach the pressure control assembly (Fig. 12, Item 34) from the frame by unscrewing the eight screws (Fig. 12, Item 35).
3. Disconnect the LCD lead from the the pressure control assembly.
5. Separate the LCD assembly from the frame by undoing the four screws (Fig. 17 Item 6)
6. Disassemble Items 1-6 (Fig 17)
7. Remove and replace LCD Display (Fig. 17 Item 3).
8. Reassemble in reverse order.

NOTE: Do not over tighten the screw and nuts (Fig 17, Item 1 & 6).
This can warp the LCD and damage it.

9. Perform "LCD Calibration Procedure". See page 25.

FIGURE 17

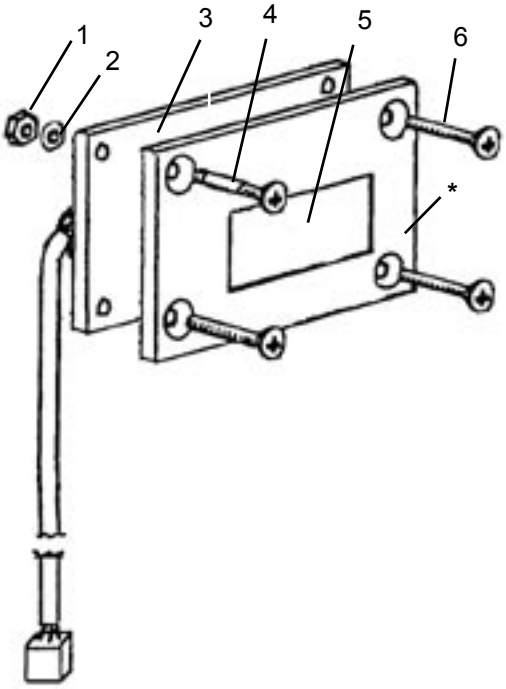


FIGURE 17 PARTS LIST		
ITEM NO.	PART NO.	DESCRIPTION
1	117-126	Nut (4)
2	120-046	Plastic Washer (4)
3	331-377	Display Board Ass'y
4	117-281	Spacer (4)
5	331-360	Window
6	100-362	Screw (4)
*		Frame

SUPPLEMENTAL 230 VOLT PARTS LIST

MODEL	MOTOR & PART NO.	BOARD
8 SERIES	1 HP - P.N. 301-058A	P.N. 301-364-99
10/11 SERIES	1.25 HP - P.N. 301-255A	P.N. 301-364-99